

The University of Chicago

THE CATEGORIES OF
CHARLES PEIRCE

A DISSERTATION SUBMITTED TO THE
FACULTY OF THE DIVISION OF THE
HUMANITIES IN CANDIDACY FOR THE
DEGREE OF DOCTOR OF PHILOSOPHY

DEPARTMENT OF PHILOSOPHY

1937

By
EUGENE FREEMAN

Private Edition, Distributed by
THE UNIVERSITY OF CHICAGO LIBRARIES
CHICAGO, ILLINOIS
1937



Digitized by the Internet Archive
in 2026

The University of Chicago

THE CATEGORIES OF
CHARLES PEIRCE

A DISSERTATION SUBMITTED TO THE
FACULTY OF THE DIVISION OF THE
HUMANITIES IN CANDIDACY FOR THE
DEGREE OF DOCTOR OF PHILOSOPHY

DEPARTMENT OF PHILOSOPHY

1937

By
EUGENE FREEMAN

Private Edition, Distributed by
THE UNIVERSITY OF CHICAGO LIBRARIES
CHICAGO, ILLINOIS
1937

Copyright
THE OPEN COURT PUBLISHING COMPANY
1934



PRINTED IN THE UNITED STATES OF AMERICA

CONTENTS

INTRODUCTION

I	PAGE
1. Ontology and phenomenology.....	1
2. Relation of categories to Peirce's system.....	2
3. Peirce's method: mathematical empiricism.....	2
4. The ontological dilemma.....	4
5. The Peircian solution of the ontological dilemma.....	5
6. The resulting dualism that permeates Peirce's philosophy.....	5
II	
7. Criticism of Broad's distinction between critical and speculative philosophy.....	6
8. Specifics and Orientics.....	7
III	
9. Peirce's contribution to specifics: pragmatism.....	8
10. Objectivity as the relative stability of belief habits.....	8
11. The realistic presuppositions of Peirce's pragmatism....	9
12. The strength and the weakness of Peirce's pragmatism..	10

PART ONE

OBJECTIVITY THROUGH PEIRCE'S CATEGORIES

I	
PEIRCE'S ONTOLOGY	
13. The categories as the key to Peirce's system.....	13
14. Objectivity the primary concern of philosophy: attained through the method of mathematical empiricism.....	13
15. Origin of the categories out of the logic of relatives....	14
16. Monads, dyads, and triads.....	15
17. Graphical and propositional illustrations of the irreducibility of monads, dyads, and triads.....	15
18. Transition from logic to metaphysics.....	16
19. Some categorial characters of firstness.....	17
20. Some categorial characters of secondness.....	18

21. Some categorial characters of thirdness.....	19
22. Some categorial characters of firstness, secondness, and thirdness.....	19
23. Criticism of the ontological proof that there is no fourth category.....	20
24. Phenomenology as the sanction of the ontology.....	20

II

PEIRCE'S PHENOMENOLOGY

25. Semi-phenomenological derivation of the categories out of Substance and Being.....	22
26. Phenomenological derivation of the categories out of the analysis of experience: their <i>Originalian</i> shapes.....	23
27. Originality, Obsistence, and Transuasion.....	25
28. The Obsistentia shapes of the categories.....	26
29. Critical evaluation of the phenomenology as the sanction of the ontology.....	27

III

THE THREE REQUIREMENTS FOR OBJECTIVITY

30. Objectivity through Peirce's three kinds of signs, the icon, index, and token.....	31
31. The three requirements for objectivity.....	32

PART TWO

THE IMPLICATIONS OF THE CATEGORIES FOR LOGIC AND METAPHYSICS

IV

LOGIC AS THE SCIENCE OF SYMBOLS

32. The three major divisions of logic: Speculative Grammar, Formal Logic, and Formal Rhetoric, as derived from the three types of signs.....	35
33. The categorial characters of the three divisions of logic.....	36
34. Classification of symbols as terms, propositions, and arguments.....	37
35. The extension and comprehension of terms, propositions, and arguments in the light of the categories.....	38
36. Critical evaluation of the conformity of Peirce's logic to the three requirements for objectivity.....	38

37. The derivation of logic through physiological psychology: reflex action, belief, judgment, thought, inference, leading principle, principle of inference.....	39
---	----

V

PEIRCE'S PRAGMATISM

38. Relation of pragmatism to thirdness.....	41
39. Premises and derivation of original maxim.....	41
40. Logic of science as the objective basis of fixation of belief.....	42
41. Pragmatism a theory of meaning and not a test for truth.....	43
42. Transition to Tychism.....	44

VI

TYCHISM AND SYNECHISM

43. Scholastic realism and tychism as the outcome of pragmatism.....	45
44. Refutation of necessitarianism and empirical grounds for indeterminism.....	45
45. Tychism as the principle of the diversity and irregularity of the universe.....	46
46. Tychism and idealism.....	47
47. Synechism as the cosmic principle of unification.....	47
48. Synechism as the integrating principle of Peirce's system.....	48
49. Synechism as the law of mind and nature.....	48
50. The synechistic interpretation of universals, possibility, and objectivity.....	49

VII

THE OBJECTIVITY OF PEIRCE'S CATEGORIES

51. The categories as tested by the first requirement for objectivity.....	51
52. The categories as tested by the second requirement for objectivity.....	55
53. Schematism of Peirce's categories.....	57
54. The categories as tested by the third requirement for objectivity.....	59
55. Conclusion.....	61

INTRODUCTION

I

1. The science that treats of the ultimate principles of Being, the categories, may be called categoriology. There are two contrasting types of categoriology—*ontology*, and *phenomenology*. Ontology is simply the hypostazation of a logic into a categorial system without argument. It is based upon the implications of the *ontological postulate*, that the principles of formal logic and epistemology are directly related to the principles of Being, that the structure of logic is the key to the structure of Reality. The speculative philosopher has always had the daring to fill his alembics and crucibles with the abstractions of logic and stir them patiently, with the sublime faith that as they simmer and bubble, they will be transmuted through the magistry of the metaphysical mind into objective categories of Being. With all his murmured incantations, however, the alchemist has never succeeded in turning empty vapors into gold. The objective categories that he dreams of finding in his crucibles turn out in the end to be the most ineffable abstractions of all philosophy. Philosophy has learned, therefore, that categories derived from formal and abstract principles must themselves be equally formal and abstract, that a metaphysics can never be more objective than the logic upon which it is based.

Ontology, then, is valid only as a description of the purely formal structure of reality, independent of all existential reference, and is invalid if it attempts to explain the nature of concrete reality. For to explain the concrete in terms of the abstract is to commit what Whitehead has aptly called "the fallacy of misplaced concreteness."¹ The breakdown of Hegel's philosophy, for example, resulted from his illicit deduction of the philosophy of nature from the categories of his logic. As Whitehead says, philosophy can explain only its own abstractions; all it can do is to explain the *abstract* in terms of the concrete, by abstracting the forms out of their concrete manifestations.² The categoriology that results from

¹ Alfred North Whitehead, *Science and the Modern World*, p. 82. New York: The Macmillan Company, 1926.

² Whitehead, *Process and Reality*, p. 4. New York: The Macmillan Company, 1929.

such a procedure may be called *phenomenology*. Thus, phenomenology is the explanation of the abstract in terms of the concrete, in contrast to ontology, which is the explanation of the abstract in terms of the abstract. Both ontology and phenomenology are necessary aspects of an adequate categoriology, the former furnishing the *logical order and universality* that the categories demand, and the latter insuring their *applicability* to nature.

2. The categoriology of Charles Peirce was meant to be the foundation for a philosophical system like that of Aristotle—a system whose outlines would be so comprehensive “that, for a long time to come, the entire work of human reason, in philosophy of every school and kind, in mathematics, in psychology, in physical science, in history, in sociology, and in whatever other department there may be, shall appear as the filling up of its details.”³ As Peirce rightly observed, it is the choice of fundamental concepts, such as Aristotle’s matter and form, act and power, substance and attribute, that determines the lasting value and influence of a system. Thus, the problem of ontology, namely, the discovery of “simple concepts applicable to every subject,” i.e., the categories, became the crucial problem of Peirce’s architectonics. Peirce unfortunately never completed the magnificent philosophical edifice he had planned, but he did succeed in working out its categorial foundations; and in true Aristotelian fashion, he outlined the implications of his categories for the major departments of human knowledge. The remarkable suggestiveness of these implications, especially for the strictly philosophical pursuits, is so manifest, that were Peirce’s unfinished investigations to be carried on further by his methods, his project of resting the brunt of an Aristotelian system of knowledge upon his categories would not, I am persuaded, be incapable of fulfillment.

3. Peirce’s categoriology has this great merit, that while it is essentially a system of speculative ontology, it is supplemented by a phenomenology that furnishes it with empirical objectivity. Peirce defines the categories as “a table of conceptions drawn from the logical analysis of thought *and regarded as applicable to being*.”⁴ Thus, like Aristotle and Kant before him, Peirce accepts the validity of the ontological postulate and of the methods of speculative

³ *Collected Papers of Charles S. Peirce*, I, vii. Edited by Charles Hartshorne and Paul Weiss. Cambridge: Harvard University Press, 1931.

⁴ *Ibid.*, p. 148. (Italics mine.)

ontology. "I shall not here inquire," he writes, "how far it is justifiable to apply the conceptions of logic to metaphysics. For I hold the importance of that question, great as it is, to be perhaps secondary, and at any rate not paramount to that of the question what such conceptions would be."⁵

But although Peirce adopts the method of ontology in order to *derive* the categories, he is too much of a scientist to be able to accept the categories as anything more than *hypotheses* until they have been verified in experience. "In my own opinion," he writes, "each category has to justify itself by an inductive examination which will result in assigning to it only a limited or approximate validity."⁶

This qualification marks Peirce's unique contribution to the science of categoriology—his attempt to combine the methods of rationalism and empiricism without absorbing either one by the other. It is true that on his view, the ultimate sanction of the objectivity of the categories can be furnished only through the phenomenology, and that the phenomenological verification of the categories may necessarily involve some modification of their universality; but nevertheless, it is still through the ontology that the *nature* of the categories must be discovered. Ontology remains a separate non-empirical science, free to work out its own results by its own methods, unhampered by any empirical restrictions until its final results have been reached. Without such freedom, ontology would be impossible, indeed, the very possibility of metaphysics would be ruled out; and on the other hand, without the sanction of the phenomenology, the categories could never be more than speculative hypotheses.

In short, Peirce's great contribution to ontology was his formulation of a revolutionary method, his *mathematical empiricism*,⁷ in which he attempted to combine the advantages of ontology with those of phenomenology. Despite the fact that the problems and difficulties that such a synthesis involves are much more difficult and complex than Peirce himself seems to have realized, I am convinced that the major difficulties Peirce ignored could be resolved on his own premises were they carried out to their logical conclusions.

⁵ *Ibid.*

⁶ *Ibid.*

⁷ For this apt term I am indebted to my teacher and friend, Professor Charles Hartshorne, under whose inspiring guidance this study was undertaken.

4. From Aristotle to Whitehead, the crucial problem of all categoriology has been this: How can the categories be at the same time both universally valid and empirically objective? How can they meet the requirement of being a "coherent, logical, and necessary system of general ideas," and still prove to be "applicable and adequate"⁸ for the interpretation of the external world given in experience?

When the categories are derived a priori from the forms of logic, they may then be truly universal and logically necessary, but their adequacy and applicability for the explanation of the external world becomes a miracle—a miracle which must be postulated on the sheer faith that the structure of logic mirrors the actual structure of the external world. Experience itself, however, does not always confirm this ontological postulate, as is witnessed, e.g., by the confusion that Aristotle's category of substance has caused in all subsequent philosophy to the present day.⁹ If, on the other hand, categoriology is made an empirical science, the categories being derived out of experience itself, then their applicability to experience is assured, and by empirical verification, their adequacy may also be established. But phenomenological categories, applicable and adequate as they may empirically be, can have no universality or logical necessity. For empirical knowledge consists of particular facts, and no summation of particulars can ever become a universal.

This dilemma, namely, that the universality and logical necessity of the categories can only be assured by ontology, which can give them no valid claim to objectivity, while their empirical objectivity can only be established by phenomenology, which deprives them of their universality and necessity, may be called the *ontological dilemma*.

In the light of this dilemma, the legitimacy of Peirce's entire phenomenological procedure might be seriously questioned. Unless the categories are truly universal, it might be argued, we could never be certain that they were inclusive enough to cover all possible experience, and thus they would prove to be inadequate for the interpretation of experience. And if Peirce's categories are deprived

⁸ Cf. Whitehead, *Process and Reality*, p. 4.

⁹ Ernst Cassirer, *Substance and Function and Einstein's Theory of Relativity*, p. 164. Chicago: The Open Court Publishing Company, 1923.

of their universality by his phenomenology, then after all, what good are they?

5. This objection is answered by the genuinely novel Peircian solution of the ontological dilemma.¹⁰ It is based essentially upon the insight that while experience can never furnish universality, yet it does furnish *generality*, namely, the generality of statistical probability. This is the generality of the laws of science, laws possessing a measurable degree of only relative certainty, yet capable of being used as practical universals for the prediction and control of future events, with an accuracy great enough for the purposes of science. Now by accepting generality as *constituting* the empirical meaning of universality, the ontological dilemma is solved for the empiricist. For he no longer finds it necessary to reject the generality he derives from experience—instead, he uses it as a practical universal, whose generality, however limited, is still sufficiently universal to answer the requirements of the categories.

6. Peirce, however, was not a strict phenomenologist, and he does not seem to have carried out his phenomenological program to the extent of actually *limiting* the validity of the categories in conformity to the results of the phenomenology. Ultimately, he remained an ontologist, and his phenomenological description of the categories seems to have been offered merely as an *illustration* of the nature of the categories as revealed in experience, rather than as an ultimate test of their validity and objectivity.

Peirce never succeeded in integrating his ontology with his phenomenology. His ontology accepts the presuppositions and methods of rationalism without revealing any awareness of the problems that his own empirical philosophy has raised concerning the limitations of rationalistic methods; and his phenomenology, on the other hand, while it does set out to remedy the inadequacy of the ontology, reveals no awareness of the problems that are involved in doing so, nor is the program ever carried far enough to reveal any genuine interaction between the ontology and the phenomenology.

Thus the conflict between the methods and results of ontology and those of phenomenology sets up a fundamental dualism that permeates Peirce's entire philosophy. Peirce professes to be a hard-headed, common-sense philosopher of science, an empiricist, re-

¹⁰ This solution, while not expressly formulated by Peirce, is the logical outcome of his phenomenology.

interpreting philosophy in terms of his phenomenological pragmatism, thereby achieving objectivity and applicability to experience; but at heart he proves to be a thorough-going rationalist, fond of excursions into speculative realms that are closed to phenomenologists and pragmatists. The resulting inconsistencies that are found everywhere in Peirce's philosophy cause it to become unintelligible until these two threads are critically separated.

II

7. *Categoriology* is the keystone of a more inclusive science, which I term *orientics*, and both categoriology and orientics rest upon a prior science, which I term *specifics*. Orientics includes that which Professor C. D. Broad calls *speculative philosophy*, and specifics corresponds to what he calls *critical philosophy*.¹¹

Broad's distinction is one of the most illuminating and suggestive contributions of recent philosophy. But the presuppositions on which his analysis is based reveal the typically warped prejudices of the scientist who conceives philosophy to be a sort of "rocking-chair" science, valid, perhaps, when it reflects upon the concepts and beliefs and methods of science, but merely speculative and rather silly when it attempts to reach a synoptic view of the universe. Consequently, his terminology, in which this prejudice is implicit, must be rejected as being inadequate to express the very real and important distinction that he has described. Neither "critical" nor "speculative" suggest precisely the nature of this distinction; and both of these terms have far too many misleading fringes of meaning for their use here to be anything but arbitrary and vague.

Broad divides philosophy into two branches, critical philosophy, which he describes as a unique and legitimate science, whose functions can not be performed by any of the other sciences, and speculative philosophy, a science whose legitimacy at present he finds questionable, for it must be preceded by critical philosophy, and the results of critical philosophy are still too meager to constitute an adequate basis for speculative philosophy. Critical philosophy analyzes, defines, and clarifies the meanings of the concepts of science and philosophy, and criticizes their presuppositions and beliefs. Speculative philosophy interprets the diverse accounts of

¹¹ Charles Dunbar Broad, *Scientific Thought*, pp. 18-20. New York: Harcourt, Brace, and Company, Inc., 1923.

the nature of the universe that it receives from the various sciences, and integrates them into a unified and coherent cosmology. It then interprets the various evaluations of the meaning and purpose of the universe that it derives from experience, literature, art, religion, and ethics, and integrates them with its scientific cosmology and with each other into a "Weltanschauung." Thus speculative philosophy means cosmic *orientation*—it consists of a cosmology derived not from speculation but reached through integration and interpretation of the accepted results of science, fused with a cosmic theory of value derived from interpretation and integration of the various accounts of the meaning and value of the universe. Thus, it is not speculation, but interpretation and creative integration that essentially characterizes the method of "speculative philosophy," and it is therefore much more appropriate to call this cosmic orientation the science of *orientics* rather than to demean it by the derogatory and misleading designation that Broad has chosen.

The term critical philosophy is similarly inappropriate. Just as it is not speculation that *uniquely* characterizes speculative philosophy, so it is not criticism that uniquely characterizes critical philosophy. Critical philosophy, according to Broad, consists of two parts. The first part is the analysis, definition, explanation, and clarification of the meanings of the concepts of science and philosophy. In short, it consists of what we may call the *specification* of meanings, and thus this part of critical philosophy may be called the science of *Specifics*. That which Broad calls the second part of critical philosophy consists of the criticism of the beliefs and presuppositions of science and philosophy. But reflection will show that there is no second part. For the criticism of a typical presupposition, such as the belief that "there are substances," or the belief that "everything has a cause," is nothing more than the *specification of the meaning* of the crucial concept involved, such as "substance" or "cause." Thus all of what Broad calls critical philosophy is included under the term specifics, and the second part of critical philosophy is nothing more than an extension of specifics.

8. Philosophy, then, may be thought of as consisting of two parts, specifics and orientics. Orientics is the science that endeavours to formulate a synoptic world-view; specifics is the science that clarifies the conceptions on which this world-view is based.

Specifics includes the philosophy of science, and is in a sense no more secure than the science it rests upon. Einstein's theory of relativity, for example, has transformed the meanings of the fundamental concepts of physics; consequently, the science of specifics must be revised into harmony with the new physics, and corresponding changes must be made in the cosmological notions of orientics. But specifics includes more than the philosophy of the results of science, it consists of the exposition of the methods and leading principles of science, and of the clarification of the notions gained from the universal experience of man—and these parts of specifics are not out-moded by any specific changes in the results of science. It is for this reason that philosophy survives the cataclysms of science, and that a philosophy based upon an outworn science may still be found to express universal and lasting truths.

III

9. Thus it is that some of the most important contributions to philosophy made by Charles Peirce, the founder of American pragmatism, are to be found in his specifics, despite the fact that his philosophy, while it does show the influence of quantum physics and non-Euclidean geometry, was based largely on pre-relativity science. More important than the meanings of individual concepts is the "meaning of meaning" itself, and this problem is the starting point of Peirce's specifics. Peirce solves the problem by formulating a method for the determination of meaning, and this method, called pragmatism, is simply an extension of the guiding principles that determine meanings in the experimental sciences. Peirce's classic formula states that the rational purport of a concept

... lies exclusively in its conceivable bearing upon the conduct of life; so that, since obviously nothing that might not result from experiment can have any direct bearing upon conduct, if one can define accurately all the conceivable experimental phenomena which the affirmation or denial of a concept would imply, one will have therein a complete definition of the concept, and *there is absolutely nothing more in it*.¹²

10. The primary concepts of philosophy, such as objectivity, reality, truth, etc., undergo startling transformations when their meanings are specified in terms of the pragmatic formula. Accord-

¹² "What Pragmatism Is," *Monist*, XV (1905), 162.

ing to Peirce, when we turn to common-sense experience and determine what the factors are in our conceptions of truth and reality that actually do or would have any possible bearing on conduct, we discover that truth means nothing but a relatively fixed belief, and reality means the world of nature which corresponds to our beliefs. Accordingly, Peirce defined logic as the science which treats of the formal conditions of the *truth* of symbols instead of merely their *validity*; by which he meant the science that "will consider to what conditions an assertion must conform in order that it may correspond to the 'reality,' that is, in order that the belief it expresses may be stable."¹³ Objectivity may be thought of as the correspondence of assertions to reality; and in this sense, objectivity was resolved by Peirce into the relative stability of belief habits. For example, the presupposition of science and common sense that nature is external and independent, is objective in the sense that it represents a relatively permanent habit of belief of society.

11. However, Peirce's pragmatism was expressly meant to be more than a mere philosophy of "Als Ob,"¹⁴ and in his 1905 *Monist* paper, Peirce, in rescuing his original doctrine from the conventionalists who had kidnapped it, pointed out that it was the thorough-going and unshakable *realistic* presuppositions of his *pragmatism*¹⁵ that distinguished it from all the rival brands of pragmatism then current.

Thus, as far as our *conduct* is concerned, the stability of nature is equivalent to the stability of our beliefs about nature, but our beliefs about the externality and independence of nature are stable *because the habits of nature are themselves stable*. And this fact is proven in empirical terms by simply *pointing* to them—by denotation, which is the ultimate test of reality.

This was the kind of proof that had established the objectivity of the experimental sciences, and this was the kind of proof that Peirce laid down as the formula for objectivity in philosophy. A scientific hypothesis can only be verified by the occurrence of an experimental phenomenon that it predicts, and an experimental

¹³ "The Regenerated Logic," *Monist*, VII (1896), 25. Reprinted in *Collected Papers*, III, 272. Cambridge: Harvard University Press, 1933.

¹⁴ *Ibid.*

¹⁵ This was the name, ugly enough to be secure from further vandalism, that Peirce gave to the final statement of his own "pragmatism."

phenomenon means an empirical event that can be *pointed* to. The objectivity of empirical science rests on the symbols that Peirce called indices, which have since become more famous as Eddington's "pointer readings." For the uniformity of nature can be verified by laboratory experiments whose conclusions are expressed in terms of measurements on various scales (i.e., indices, or pointer readings) that are relatively constant for all investigators repeating the experiment. Since philosophy, too, is an empirical science, objectivity in philosophy can be won best by the same method through which it is achieved in the other sciences, by pointing to phenomena that others may verify, in other words, by the use of testimony based on denotation and social agreement.

12. The strength of Peirce's pragmatism is due to the persuasiveness of his realistic presuppositions and the science-like objectivity that his pragmatic specification of meanings affords. Pragmatism is not a theory of reality, but a theory of meaning. By defining concepts in functional or instrumental terms, they gain the preciseness and sharability that is requisite for scientific objectivity. And by retaining the realistic presuppositions of the plain man concerning the genuineness of external reality, Peirce is able to reinforce the precarious defenses of a conventionalistic theory of nature with the powerful armament of common-sense realism.

The weakness of Peirce's position is due to the fact that a theory of meaning cannot be separated from a theory of reality, and conventionalism, as a theory of reality, is defenseless. For if reality means the world of nature which corresponds to our relatively stable habits of belief, then the reality of nature fluctuates with the variations of our beliefs, like a candle flame flickering in the wind, changing when our beliefs change, and vanishing when we become sceptics. And on the other hand, when the heavy guns of common-sense realism are called upon to strengthen the defenses of Peirce's conventionalism, instead of laying down a protective barrage around it, their own shells blow it to pieces. Once it has been admitted that our beliefs about nature are stable because the habits of *nature* are themselves stable, then the objectivity of nature is admitted to be independent of our beliefs, and conventionalism becomes untenable as an explanation of the ultimate metaphysical meaning of reality.

When these qualifications are made, and pragmatism is accepted simply as a scientific fiction, as a working hypothesis for the de-

termination of meanings in so far as they bear upon conduct, the true worth of the pragmatic principle is restored; for when its metaphysical pretensions are abandoned, it is recognized to be the theory of meaning employed by the experimental sciences, and the success of these sciences has proven the validity of pragmatism as a purely *regulative* principle of scientific method. As a working principle of philosophic method, pragmatism may well prove to be equally successful, provided that it is used only as a regulative principle for the interpretation of experience, and never used constitutively to determine the ultimate meanings of metaphysics.

It is beyond the scope of this monograph to formulate a theory of meaning to account for the ultimate non-pragmatic ontological concepts. But it should be noticed that one of the most crucial problems of pragmatism has been raised at this point, namely, "What are the limits of applicability of the pragmatic method?" If the pragmatic theory of meaning is applicable to the whole field of philosophy, then ontological metaphysics must be abandoned and all its results repudiated, which is too drastic a conclusion for even the most radical pragmatist to accept; and on the other hand, if the applicability of the pragmatic theory of meaning is recognized as being *limited*, then pragmatism must determine what these limits are, and an ontological theory of meaning that harmonizes with pragmatism must be worked out by the pragmatist himself. It is one of the major defects in Peirce's own philosophy, that, as far as we can judge from his published writings, these questions were never raised.

PART ONE

OBJECTIVITY THROUGH PEIRCE'S CATEGORIES

I

PEIRCE'S ONTOLOGY

13. The philosophy of Charles Peirce was developed systematically out of the implications of the three categories that he called Firstness, Secondness, and Thirdness. Peirce's categories, rooted in his symbolic logic, supporting his esthetics and ethics, spreading out in the firm branches of his descriptive logic, and blossoming into the flowers of his metaphysics, trace out, in their symmetrical ramifications, the pattern of his entire system of philosophy.

14. For Peirce, as a phenomenologist and a philosopher of science, *objectivity* was the primary concern of philosophy. He defined philosophy as the most general of the empirical sciences—as a description of experience in the most general terms.

Philosophy, though it makes no *special* observations, as every other positive science does, yet it does deal with reality. It confines itself, however, to the universal phenomena of experience; and these are, generally speaking, sufficiently revealed in the ordinary observations of every-day life.¹⁶

Thus, Peirce considered ontology to be the essence of philosophy, and ontology meant to him a fusion of speculative ontology with phenomenology. For he found philosophy, like the special sciences, to be a sort of mathematical empiricism. It is the empirical content of the sciences that gives them their concreteness. But the empirical data of the special sciences must be arranged into a logical form that can furnish the basis for scientific prediction, and it is mathematics that gives the sciences this logical form. Consider, for example, the science of chemistry, which is based upon the implications of a set of numbers—the atomic numbers of the chemical elements. The first step in chemistry is the classification of chemical substances, the empirical data of chemistry, in the most

¹⁶ "The Regenerated Logic," *Monist*, VII (1896), 19. Reprinted in *Collected Papers of Charles S. Peirce*, III, 271. Edited by Charles Hartshorne and Paul Weiss. Cambridge: Harvard University Press, 1933.

general terms, i.e., in terms of their atomic numbers. By means of this classification, the relative combining weights of the elements are known, and quantitative predictions may be made concerning the proportions in which the elements combine with one another. In much the same way, the first step in philosophy is a description of experience in the most general terms, in other words, a classification of phenomena in terms of the categories. As in the special sciences, the empirical data of philosophy must first be arranged into a logical form. This is done by means of general conceptions or categories, and here again, as in the sciences, it is mathematics that is the key to the categories. For philosophy, like chemistry, according to Peirce, is based upon the implications of a set of numbers, the numbers one, two, and three, generalized into the categories of Firstness, Secondness, and Thirdness.

15. The categories of Peirce's *speculative ontology* are derived primarily from his logic of relatives, in which he invents a notation for representing the various possible types of relations and signs. There are, he tells us, three irreducible kinds of relations, which are symbolized by three kinds of relatives—*monads*, *dyads*, and *triads*; and corresponding to these relatives are the three kinds of signs—the *icon*, the *index*, and the *symbol*. These three kinds of relations and signs, Peirce argues, are the clues to the three essentially different kinds of mental processes; and consequently they are the clues to the categories. Peirce's argument is as follows:

... when the notation which suffices for exhibiting one inference is found inadequate for explaining another, it is clear that the latter involves an inferential element not present to the former. Accordingly, the procedure contemplated [that of discovering the irreducible types of notation], should result in a list of categories of reasoning, the interest of which is not dependent upon the algebraic way of considering the subject.¹⁷

It is important for us to understand the theory of signs upon which Peirce's logic of relatives was based. In the first place, it shows us that for symbolic logic, at least, monads, dyads, and triads are ultimate and irreducible; and since the theme of all the rest of Peirce's philosophy is the conception that the monad, dyad, and triad are the essence of the ultimate categories of all philosophy, to know what these terms mean gives us an insight into Peirce's reasoning, and helps us to appreciate the unity of his system as a

¹⁷ "On the Algebra of Logic," *The American Journal of Mathematics*, VII (1885), 183. Reprinted in *Collected Papers*, III, 213–14.

whole. And in the second place, not only do monads, dyads, and triads compose the theme that is the key to the unity of Peirce's system, but they are also the key to its objectivity, with which we are primarily concerned at this point. Therefore, in order to understand the requirements for objectivity, which depend on certain aspects of Peirce's theory of signs, and in order to understand the categories, upon which the structure of his whole system is based, we must first grapple with the key to the cipher—monads, dyads, and triads themselves.

16. Any character or proposition either concerns one subject, two subjects, or a plurality of subjects, depending on the implication of the copula through which the relations among the subjects are symbolized. A system of relations expressed in a proposition is called a *relative*, and relatives are named dyads, triads, and polyads, depending on the number of subjects related.

A triad is a relation between three things or subjects. It is expressed in a copula which is like a chemical atom with three valences, since it has three free bonds to which three subjects must be attached to give it meaning. For example, the copula "—is the meaning of —to—" implies an attachment to three subjects, as "x is the meaning of y to z." The proposition with the subject left blank is called a *relative*, in this case a triad; and the subjects are called *heccities*, or thisnesses, because they can be denoted or pointed to if they are real, in contrast to the copula, which is sheer connectiveness with no character of its own except relation.

The dyad is a relation between two things. It is expressed in a copula which is like a divalent atom since it has two free bonds to which the two subjects it implies must be attached. For example, the copula "attracts" implies an attachment to two subjects, "x—attracts—y."

The monad is non-relative—it is a "degenerate relation" with only one term. The monad is a character or subject considered by itself apart from all relations to anything else, expressing the relation merely of identity with itself. It has a single free bond which is attached to nothing but which could be attached to almost anything. For example, the character *whiteness* can be considered by itself as an essence, or, in Peirce's terminology, a *ground*.

17. The individuality of the monad, the dyad, and the triad can be shown by the aid of the following diagrams:

*— monad

—*— dyad

—*— triad
|

A monad added to a monad does not produce a dyad, the resultant still has only one free bond, so it is merely a more complex monad, e.g.,

*— plus *— equals *—*

A dyad added to a monad does not produce a triad, the resultant still has only two free bonds so it is merely a more complex dyad; and the same is true of the addition of two dyads, e.g.,

—*— plus *— equals —*—*

—*— plus —*— equals —*—*—

But from the triad all polyads can be derived, for a new free bond is added with every triad, and thus polyads of any complexity can be produced by adding on triads, e.g.,

—*— plus —*— equals —*—*—*— which

plus —*— equals —*—*—*—*— etc.

These principles can also be illustrated in words, as in the following examples:

The monad "there is *whiteness*" plus the monad "there is *hardness*" gives the more complex monad "there is *whiteness* and there is *hardness*."

The monad "there are *books*" plus the dyad "*Arthur* parts with *books*" gives the more complex dyad "there are *books* and *Arthur* parts with *books*."

The dyad "*Arthur* parts with *books*" plus the dyad "*James* acquires *books*" gives the more complex dyad "*Arthur* parts with *books*, and *James* acquires *books*."

The triad "*James* agrees with *Arthur* upon the covenant *X*" plus the complex triad "This covenant is that *James* is to give *Arthur* two dollars, and that *Arthur* is to give *James* the book," gives the quadratic polyad "*Arthur* agrees to sell the book to *James* for two dollars."

18. In Peirce's speculative ontology, the monad becomes the category of firstness, the dyad becomes the category of secondness, and the triad becomes the category of thirdness. Stated simply,

Firstness is the conception of being or existing independent of anything else. Secondness is the conception of being relative to, the conception of reaction with, something else. Thirdness is the conception of mediation, whereby a first and second are brought into relation.¹⁸

¹⁸ "The Architecture of Theories," *Chance, Love, and Logic*, p. 176. Ed. Morris R. Cohen. New York: Harcourt, Brace, and Company, Inc., 1923. This volume contains an excellent bibliography of Peirce's published papers, pp. 309-18.

The first is that whose being is simply in itself, not referring to anything nor lying behind anything. The second is that which is what it is by force of something to which it is second. The third is that which is what it is owing to things between which it mediates and which it brings into relation to each other.¹⁹

19. Firstness precedes all synthesis and all differentiation, it has no unity and no parts. That which is absolutely first must be entirely separated from all conceptions of or reference to anything else. The first must be present and immediate, fresh, original, spontaneous, free, since it cannot be second to a determining cause. It is vivid, but it must not be the *object* of some sensation. It cannot be articulately thought or asserted, for assertion implies a denial of something else.

Stop to think of it, and it has flown! What the world was to Adam on the day he opened his eyes to it, before he had drawn any distinctions, or had become conscious of his own existence—that is first, present, immediate, fresh, new, initiative, original, spontaneous, free, vivid, conscious, and evanescent. Only, remember that every description of it must be false to it.²⁰

The pure idea of a monad is the idea of a “*sui generis* suchness,” that is, a special quality, with some degree of determination but none of comparison.

Imagine me to make and in a slumberous condition to have a vague, unobjectified, and still less unsubjectified, sense of redness, or of salt taste, or of an ache, or of grief or joy, or of a prolonged musical note. That would be, as nearly as possible, a purely monadic state of feeling. Now in order to convert that psychological or logical conception into a metaphysical one, we must think of a metaphysical monad as a pure nature, or quality, in itself without parts or features, and without embodiment. Such is a pure monad. The meanings of names of “secondary” qualities are as good approximations to examples of monads as can be given.²¹

Ineffable as the conception of the metaphysical monad may be, Peirce's description makes one fact about it unmistakably clear, namely, that the monad is not a phenomenological event, but a pure ontological construct. It is true, as Peirce says, that any phenomenological description of the monad must be false to it, for such a description can be no more than a bare approximation; but this does not vitiate the authenticity of the pure monad any more

¹⁹ *Collected Papers* (Cambridge, 1931), I, 183.

²⁰ *Ibid.*

²¹ *Ibid.*, p. 149.

than the objective validity of the concept of a circle is affected by the fact that no empirical instance of circularity, even the most precise geometric diagram, can ever be more than a rough approximation of circularity. And in the same sense that instances of circularity, such as geometric diagrams, are genuinely circular, so instances of monadicity, such as the secondary qualities, are genuinely monadic, approximate though they may be.

20. Secondness is the acknowledgment of the reality of the external world. The second is that which cannot be what it is without the first. "It meets us in such facts as another, relation, compulsion, effect, dependence, independence, negation, occurrence, reality, result."²² The second is determined unalterably by the first. Secondness is resistance, effort, the stubborn resistance of brute fact, whose very existence consists in its inertia.

We find secondness in occurrence, because an occurrence is something whose existence consists in our knocking up against it. A hard fact is of the same sort; that is to say, it is something which is there, and which I cannot think away, but am forced to acknowledge as an object or second beside myself, the subject or number one, and which forms material for the exercise of my will.²³

Secondness is the element of struggle, that is, the "mutual action between two things regardless of any sort of third or medium, and in particular regardless of any law of action."²⁴

A dyad consists of two subjects brought into oneness. These subjects have their modes of being both in themselves and in their connection with each other as first and second. The dyad is not the subjects, but the relation between them, it has the subjects as one element of it. The dyad brings the subjects together and thereby imparts a character to each of them. Think of God creating light by fiat—instantaneously. This is an example of a dyad. God and light are the subjects. The act of creation is the suchness of connection of God and light, i.e., it is the relation. The dyad is the fact. It determines the existence of the light, and the Creatorship of God. The two aspects of the dyad are, God's Compulsion of the existence of the light, and the light, by its existence, making God a Creator. In this particular case, which represents only one

²² *Ibid.*, p. 184.

²³ *Ibid.*

²⁴ *Ibid.*, p. 161.

of the many possible types of dyads, the former aspect is fundamental, real, primary; the latter is merely derivative, formal, secondary. The example was chosen because it represents an instantaneous case. Had there been an intervening process between the cause and the effect, it would have brought in the category of thirdness, for mediation is thirdness. Thus pure dyadism is an act of the arbitrary will, or blind force, ungoverned by reason or law. The dyad is an individual fact, as it existentially is, and it has no generality in it. The being of a monadic quality is a mere potentiality without existence; while existence is purely dyadic.

21. Thirdness is mediation, generality, order, interpretation, meaning, purpose. The third is the medium or bond which connects the absolute first and last, and brings them into relationship. Every process involves continuity, and continuity represents thirdness almost to perfection.

One of the ideas in which thirdness is predominant is the idea of a sign, or representation. "A sign stands *for* something *to* the idea which it produces, or modifies. . . . That for which it stands is called its *object*; that which it conveys, its *meaning*; and the idea to which it gives rise, its *interpretant*."²⁵ Meaning and purpose are the kernel of thirdness, and these can be expressed only in triadic terms, e.g., A is the meaning of B to C. Every triadic relation involves meaning. For example, "A gives B to C," does not mean that A threw away B, and C accidentally found it; it means that there was a deliberate transfer of the right of property, thus involving law, thought, meaning, and purpose. Unless the first and third of a triadic relationship are connected by meaning, then the relation is not triadic, but a succession of two dyads, e.g., A lost B, and C found B.

22. The quality of immediate consciousness, of absolute present, is firstness; the existence and brute compulsion of external reality is secondness; the representation that mediates between the two—law, order, generality, meaning, is thirdness. Firstness is the category of the present, secondness of the past, thirdness of the future; for the quality of the first is in the absolute present, the existence of the second is the irrevocable reality and compulsion of the happenings of the past; and the third, which is meaning, purpose, law, generality, order, is a potentiality governing the future, a prediction by which the future may be controlled.

²⁵ *Ibid.*, p. 171.

The conception of the absolute first is an ineffable metaphysical abstraction eluding every attempt to grasp it, and so is the conception of the absolute second, for firstness and secondness are never actually cut off from each other and from thirdness, but interpenetrate each other and involve monadic, dyadic, and triadic aspects. But there is no absolute third, not even as a metaphysical abstraction, for the third is essentially relative.

23. But how do we know that there are only three categories? Why not go on and find new conceptions in four, five, and the higher numbers? The logic of relatives, from which the conceptions of monad, dyad, and triad originally came, answers this question. For it proves, as we have already seen, that monads, dyads, and triads are irreducible to each other, while all higher relatives can be reduced to triads, so that fours, fives, and all higher numbers are mere complications of threes. The speculative ontology accepts the verdict of the logic that all polyads of higher additivity than the triad consist of combinations of triads, while the dyad, triad, and monad are irreducible, and the ontology concludes that therefore there are only three irreducible categories, and there can be no more. Needless to say, the validity of this argument rests upon the same grounds as the validity of the categories themselves, namely, the validity of the ontological postulate, which assumes without question that the categories of logic are *per se* the categories of Being. The principles of the speculative ontology are simply corollaries of this postulate, and they can only be as valid as the postulate is legitimate. The legitimacy of the postulate, however, is quite disputable; for it is a bare unproven assumption, rationalistic, speculative, prejudiced, and in its favor there is only its convenience because of its generality and simplicity.

Peirce makes no attempt to justify or prove the ontological postulate, remarking that it is beyond his province to question the applicability of logic to metaphysics. But he does argue that the history of philosophy has proven that metaphysics should be based upon logic, and he declares that "a metaphysics not founded on the science of logic is of all branches of scientific inquiry the most shaky and insecure."²⁶

24. The sanction of the speculative ontology comes not from within, but from the phenomenology, which corroborates the results of the ontology in experiential terms. Peirce's phenomenology

²⁶ *Collected Papers* (Cambridge, 1932), II, 23.

undertakes to prove that the categories postulated by the speculative ontology have an experiential as well as a merely logical being, that they are not mere logical deductions, but the very fabric of experience itself. The method of the phenomenology consists in dissecting out the categories by analyzing experience into its fundamental elements.

II

PEIRCE'S PHENOMENOLOGY

25. Peirce's profoundest and most convincing description of the categories is found in one of his earliest writings, a semi-phenomenological paper called "A New List of Categories."²⁷ His argument is briefly as follows.

The manifold of sense experience at a given moment is a confused jumble of all the content present in awareness. The categories are based on the theory that the purpose of conceptions is to reduce the manifold of sense experience to unity. The categories are the general conceptions through which this unification takes place.

The general conception which is nearest to sense experience is the conception of the present in general, the pure denotation of the content of awareness, which therefore has no unity, in other words, the conception of bare subject, or substance.

The unity to which the understanding reduces impressions is the unity of a proposition, the connection of the predicate with the subject. The reduction of the manifold to unity is completed, therefore, by the conception of that which is implied in the copula, namely, the conception of Being, which has no content of its own but is just sheer connectiveness or integration. In other words, a completed proposition has two parts, first, the substantial, i.e., empirical, contents; and second, the relations among the contents. The first stage in the deduction represents the proposition with the relations left out, while the second stage corresponds to what we have defined as a relative, namely, the proposition with the subjects left out, leaving only the bare relations with no content.

Substance and Being are the beginning and end of all conception. Substance has content, but no unity, while Being has unity but no content. The problem of the categories is thus laid bare, namely, the discovery (through empirical psychology) of the general conceptions intermediate between the manifold of Substance and the unity of Being.

²⁷ *Proceedings of the American Academy of Arts and Sciences*, VII (1867), 287-298. Reprinted in *Collected Papers of Charles S. Peirce*, I, 287-305. Edited by Charles Hartshorne and Paul Weiss. Cambridge: Harvard University Press, 1931.

The conception of Being arises upon the formation of a proposition. A proposition always has a subject which expresses the substance and a predicate which expresses the quality of that substance; and the function of the conception of Being is to unite the quality to the Substance.

The first conception in passing from Being to Substance is, therefore, the conception of *Quality*, reference to an essence or "ground"; e.g., "There is *blackness* in the stove." This is the category of firstness.

But empirical psychology proves that we can know a quality only by means of contrast with or similarity to another, that is, through its relations to the total field. In other words, we know a quality only by reference to a correlate, and this gives us the second conception in passing from Being to Substance, the conception of *Relation*, i.e., reference to a correlate. This is the category of secondness; in his later writings Peirce tells us that it also expresses striving, activity, conflict.

A reference to a correlate is a comparison. But every comparison requires an interpreter that does the comparing, who holds together the diversity of impressions as being his, and thus understands the meaning of the comparison in terms of his own purposes, in terms of their bearing on his conduct. Thus, the reference to an interpretant directly unites the manifold of the substance itself—and is therefore the last conception in passing from Being to Substance, namely, the conception of *Interpretation*, or reference to an interpretant. Thus, as even this early article suggests, meaning must ultimately be conceived in pragmatic terms—i.e., in terms of purpose.

26. Another predominantly phenomenological description of the categories is found in Peirce's unfinished book called the "Minute Logic."²⁸ This book, Peirce tells us, was to have been a logical analysis of what appears in the world. It was not to be a metaphysics, but a logic. It did not propose, therefore, to treat of what really is, but only of what appears—to all of us and at every moment of our lives.

*I analyze experience, which is the cognitive resultant of our past lives, and find in it three elements. I call them Categories. Would I could render them to the reader as vivid, as undeniable, as rational as they are to me. . . . They appear in myriad shapes, . . .*²⁹

²⁸ *Collected Papers*, (Cambridge, 1932), II, 42–66.

²⁹ *Ibid.*, p. 44. (Italics mine.)

Take, for example, the conception of experience itself. Some *fact* there must be in experience, all experience compels our acknowledgment. But remember that we do not mean what the secret nature of the fact is, simply what we think it to be. What is the fact, then, that is present to you in experience? Reflection shows that it is the past.

The past is blunt and unreasonable. Its force is brute force. You are brutally compelled to admit that there is such an element in the world of experience as brute force. But brute force involves effort, and effort involves resistance. We can make no effort when we experience no resistance, no reaction. The sense of effort is two sided, revealing something within and something without. The principal ingredient in the idea of brute force is binarity. For brute force is reaction, and this is binarity. "Imagine two objects which are not merely *thought* as two, but of which something is true such that neither could be removed without destroying the fact supposed true of the other. Take, for example, a husband and wife."³⁰

The bruteness of pure binarity, such as force, consists in the absence of any thirdness, or mediating element, such as reason, regularity, or rule. "Binarity is one of my categories. *I do not call it a conception; for it can be given in direct perception antecedent to thought.* It penetrates every part of our inner world, as every part of the universe."³¹ Among the inner shapes which binarity assumes is the struggle against the doubts forced upon our minds. Binarity also appears in negation, in ordinary relative terms, in similarity, and in identity.

Let us now consider what would appear in the knife-edged absolute present. "We can only guess; for nothing is more occult than the absolute present."³² In the first place, there could be no binarity, no action. The world would be reduced to an indeterminate quality of unanalyzed feeling, without continuity, without parts, without any *degree* of vividness of the feeling.

I may call its form Firstness, Orienice, or Originality. It would be something *which is what it is without reference to anything else* within it or without it, regardless of all force and of all reason. Now the world is full of this element of irresponsible, free, Originality. Why should the middle part of the spectrum look green rather than violet? There is no conceivable reason

³⁰ *Ibid.*

³¹ *Ibid.*, p. 45. (Italics mine.) Notice that this description of the categories is pure phenomenology.

³² *Ibid.*

for it nor compulsion in it. Why was I born in the nineteenth century on Earth rather than on Mars a thousand years ago? . . . All these are facts which are as they are, simply because they happen to be so.³³

Usually these facts are neglected, but in cases like qualities of feeling, self-consciousness, etc., they reveal themselves in isolated flashes. Thus Originality, or Firstness, is another one of the categories.

Let us now turn to Being in the future. This appears in mental forms, intentions, and expectations. All our knowledge of the future is obtained through the medium of thirdness. The future does not influence the present in the direct way that the past does, but by means of a machinery, a medium, which we call law, final causes, or ends. The organic world is full of manifestations of such laws and ends; evolution, for example, is simply the action of final causes. All our knowledge of the laws of nature is analogous to the knowledge of the future. We do not know the laws directly, but guess them out by trial and error, gradually eliminating the wrong guesses and getting nearer to the truth. Science seems to have a remarkable though excessively imperfect power of guessing right. This seems to indicate that Nature is ruled by a Reasonable Power, and there is a direct power of reason to know how reason will act. But for an experimental scientist, the tendency to guess nearly right is better explained by considering it to be itself the result of an experimental procedure. In experimental reasoning, e.g., there is a pairedness between the experiments and the results of the experiments, namely, that the results follow the experiments in accordance with a previous hypothesis; nor could these pairednesses have existed had not a third thing, the prediction, been made.

Just as a real pairedness consists in a fact being true of A which would be nonsense if B were not there, so we now meet with a Rational Threeness which consists in A and B being really paired by virtue of a third object, C.³⁴

In all action governed by reason, genuine triplicity will be found, as in giving, for example, which involves intention, the mind's action. Intellectual triplicity, or mediation, is the third and last category.

27. The following technical names are suggested by Peirce as designations for the categories:

³³ *Ibid.*, p. 46.

³⁴ *Ibid.*, p. 48.

Originality is being such as that being is, regardless of aught else.

Obsistence (suggesting *obviate*, *object*, *obstinate*, *obstacle*, *insistence*, *resistance*, etc.) is that wherein secondness differs from firstness; or, is that element which taken in connection with Originality, makes one thing such as another compels it to be.

Transuasion (suggesting *translation*, *transaction*, *transfusion*, *transcendental*, etc.) is mediation, or the modification of firstness and secondness by thirdness, taken apart from the secondness and firstness; or, is being in creating Obsistence.³⁵

28. Originality is the most primitive, simple, and original of the categories, but it is not the most obvious and familiar. So far, only the *original* aspect of the categories has been considered. We now pass to the easier study of their obsistential shapes.

In the Obsistential aspect, Originality presents itself as a Quality, which is something which is such as it is, and is so free from Obsistence as not even to be self-identical, or individual. Two Qualities which are alike, as all Qualities are, are, in so far, the same Quality. Obsistence presents itself as a Relation, which is a fact concerning a set of objects, the Relates. A Relation is either *Genuine* or *Degenerate*. A Degenerate Relation is a fact concerning a set of objects which consists merely in a partial aspect of the fact that each of the Relates has its Quality. It is a Relation of Qualities; such as that A is greater than B. Its relates may be qualities or objects possessing qualities. It may be a Similarity, which is a more Degenerate form, or a Difference, which is a less Degenerate form, or it may be mixed. A Genuine Relation is one which is not necessarily involved in its Relates having any Qualities regardless of each other. Each relate is necessarily individual, or self-identical.³⁶

In its obsistent aspect, Transuasion is mediation, and this is subject to two degrees of degeneracy. Genuine mediation is expressed by a Sign.

A *Sign* is anything which is related to a Second thing, its *Object*, in respect to a Quality, in such a way as to bring a Third thing, its *Interpretant*, into relation to the same Object, and that in such a way as to bring a Fourth into relation to that object in the same form, *ad infinitum*.³⁷

The interpretant need not necessarily exist, it may be a being in futuro.

Signs have two degrees of Degeneracy. A Sign degenerate in the lesser degree, is an Obsistent Sign, or *Index*, which is a Sign whose significance of its Object is due to its having a genuine Relation to that Object, irre-

³⁵ *Ibid.*, p. 50.

³⁶ *Ibid.*

³⁷ *Ibid.*, p. 51.

spective of the Interpretant. Such, for example, is the exclamation "Hi!" as *indicative* of present danger, or a rap at the door as indicative of a visitor. A Sign degenerate in the greater degree is an Originalian Sign, or *Icon*, which is a Sign whose significant virtue is due simply to its Quality.³⁸

For example, the portrait of a person I have not seen, in so far as it is a pure image, is an Icon to me. But actually it is not a pure Icon, because I know that it is an obsistent effect, through the artist, caused by the original's appearance, and besides, I know that portraits have but a conventional resemblance to their originals.

A Genuine Sign is a Transuational Sign, or *Symbol*, which is a sign which owes its significant virtue to a character which can only be realized by the aid of its Interpretant. Any utterance of speech is an example.³⁹

The sounds of words have lost the iconic and indexical qualities they may have once had, except perhaps in poetry, music, or rhetoric, and words now have only a conventional meaning; that is, they stand for the objects they do, and signify the qualities they do, because they will determine corresponding signs in the mind of the auditor.

29. This brief phenomenological exposition of the categories supplements and strengthens the deduction of the categories from symbolic logic presented in the ontology. The categories are shown to be woven into the texture of experience itself, in which their complexity and inter-connectedness are everywhere revealed. For example, in the experience of listening to music, the categories may be directly perceived. A symphony is a blend of the categories, in which firstness is present in each separate note as the unique quality of sheer musical sound, beautiful in itself and for its own sake. Secondness is the *shock* of the music, its forcible stir and compulsion, the challenging and unexpected waywardness of its successive notes—it is the crash that shatters a sustained note into myriad fragments, into themes and counter-themes and harmonies. These are the category of thirdness. A theme is a pattern of notes, a set of relations between a note and its predecessor and its successor. It is the law that co-ordinates the series of notes and unifies them into an orderly and significant whole.

But although the phenomenology does succeed in establishing the experiential status of the categories, it may be noticed that never does the phenomenology attempt to offer any corroboration

³⁸ *Ibid.*

³⁹ *Ibid.*

for Peirce's ontological contention that his categories are the final and ultimate and irreducible categories of all philosophy, that "there are no others." His sole proof for this contention is purely ontological in the speculative sense of the word, his argument being based, as has already been pointed out, on the irreducibility and ultimacy of the monadic, dyadic, and triadic relations and signs of symbolic logic. But such a proof, resting as it does upon a speculative analogy connecting the structure of symbolic logic and the structure of the world we live in, can be verified only by turning to experience and discovering if the analogy does hold. And such a phenomenological vindication of the *ontological* proof that there are only three categories was never offered by Peirce himself. Nor, on his own phenomenological principles, could he even attempt to formulate such a proof. For if the categories, as Peirce maintains, are not conceptions, but are "given in direct perception antecedent to thought," then it is impossible to prove that there will never be a fourth or fifth or higher category given in some future experience. For the possibility of their occurrence in future experience is not ruled out by the structure of present experience, or of past experience. Experience simply happens, and it lays down no fully predictable requirements upon itself—no laws concerning the nature of future happenings can ever be apodictically formulated solely on the basis of experienced events. Any such limitation of all possible experience would be valid only in Kantian terms, in terms of a priori conceptions or laws that were not themselves empirical. But to redefine the categories as conceptions would be a return to ontology. Thus, the limitation of the number of categories to three and only three appears to be too great a task for the phenomenology; and, in my opinion, no thorough-going phenomenologist would ever have undertaken such a limitation. Would not a genuine empiricist, who defined the categories not as conceptions, but as givens of perception, admit the possibility of experiencing new categories in the future?

In the final analysis, the ultimate basis of the categories proves to have been not the phenomenology, but the ontology. That there are three and only three categories, that there can never be a fourth, is one of the most crucial contentions of the categoriology. We have seen the impossibility of any phenomenological verification of this principle, and we are forced to conclude that the phenomenology offers only a limited verification of the ontology. It is

not only unable to establish the number of the categories, but it cannot determine independently even their nature. The phenomenology is not really a separate derivation of the categories, as Peirce claims it to be, but an empirical *sanction* for the results of the ontology, somewhat like the diagrams in geometrical demonstrations, offered as *illustrations* of the relevance of the demonstrations to experience; similarly, the phenomenology *illustrates* the relevance of the ontological categories for the interpretation of experience.

We are forced to reject Peirce's extravagant claims concerning the independence and completely a posteriori nature of the phenomenology, as evidenced most strikingly in his statement that "the categories are not forms of thought but givens of perception."⁴⁰ For while phenomenological in form, his exposition, as we have said, is really only an empirical corollary of the ontology; and without the result of the ontology before him, it would have been impossible for Peirce either (a) to know how many categories to look for; or (b) to know the essential and irreducible differences between all the diverse categorial characters which "appear in myriad shapes" in experience; or (c) to recognize the primordial categories to which all the categorial characters severally belong, and to ascribe each categorial character to the proper category.

The difference between the phenomenology and the ontology is that the ontology determines what the formal principles of the categories themselves are, while the phenomenology discovers by an analysis of experience what the categorial characters of the categories are. Experience reveals to the phenomenologist not merely three categories, but a myriad of categories, all of which, however, may be shown by the ontologist to be simply empirical shapes, i.e., *categorial characters* of the three irreducible categories of the ontology. Without this simplification and ordering of the categorial characters of experience, the categorial interpretation of experience is almost too complex to be possible; and it is only when the ultimate categories are understood to be the abstract constitutive principles furnished by the ontology, capable of generating and applicable to the multitude of categorial characters revealed in experience, that the categorial interpretation of experience becomes truly intelligible.

⁴⁰ See above, p. 24.

Thus the mutual dependence of the phenomenology and the ontology upon each other is now evident. The nature of the categories themselves is discoverable only through the ontology, while the nature of the categorial characters of the categories (or of experience) is revealed only in the phenomenology. Through the phenomenology alone can we discover what the categories of experience are, and only through the ontology can we learn that the categories of experience, inexhaustible as they may be, are simply the categorial characters of the three ontological categories. Only through a genuine synthesis of phenomenology and ontology is it possible, therefore, to construct a categoriology that is at once logical and necessary, and yet empirically applicable and adequate.

III

THE THREE REQUIREMENTS FOR OBJECTIVITY

30. We are now ready to continue on our quest for objectivity. To do this we must return to Peirce's theory of symbols. There are, according to Peirce, three kinds of signs, the icon, the index, and the token, corresponding in turn to the monad, dyad, and triad, and therefore to firstness, secondness, and thirdness. A token is triadic, it is in conjoint relation to the thing denoted and the mind. It is related to the object only in consequence of a mental association; in other words, it is an arbitrary conventional symbol in the usual sense of the word symbol. Tokens are always abstract, and general, because habits are the general rules of the organism. All general words, for example, are tokens, and the main body of speech consists of tokens.

An index is dyadic. The relation of the index to its object does not lie in a mental association, as in the case of the token, instead there is a direct dual relation of the sign to its object independent of the mind using the sign. The index qualifies its object by being really connected with it. All natural signs and physical symptoms are indices, "a pointing finger being the type of the class." The index asserts nothing, it only says "there!" forcibly directing our eyes to a particular object. Demonstrative and relative pronouns are indices because they denote things without describing them.

An icon is monadic. It is a sign which stands for something merely because it resembles it. Icons are so completely substituted for their objects as to be hardly distinguished from them. Such are the diagrams of geometry, or paintings, at the moment that we forget the distinction between the real and the copy, and the diagram or the picture is for us the very thing. At this moment it is a pure dream, not any particular existence, and yet not general, it has become an icon.

In a perfect system of logical notation all three types of signs must be employed.

Without tokens there would be no generality in the statements, for they are the only general signs; and generality is essential to reasoning. . . . But tokens alone do not state what is the subject of discourse; and this

can, in fact, not be described in general terms; it can only be indicated. The actual world cannot be distinguished from a world of imagination by any description. Hence the need of pronouns and indices, and the more complicated the subject the greater the need of them. . . . Indices are also required to show in what manner other signs are connected together. With these two kinds of signs alone any proposition can be expressed; but it cannot be reasoned upon, for reasoning consists in the observation that where certain relations subsist certain others are found, and it accordingly requires the exhibition of the relations reasoned within an icon.⁴¹

Mathematics, for example,

. . . presents as rich and apparently unending a series of surprising discoveries as any observational science. . . . The truth, however, appears to be that all deductive reasoning, even simple syllogism, involves an element of observation; namely, deduction consists in constructing an icon or diagram the relations of whose parts shall present a complete analogy with those of the parts of the object of reasoning, of experimenting upon this image in the imagination, and of observing the result so as to discover unnoticed and hidden relations among the parts. . . . As for algebra, the very idea of the art is that it presents formulae which can be manipulated, and that by observing the effects of such manipulation we find properties not to be otherwise discerned.⁴²

By showing that there are three irreducible types of notation, namely, the icon, index, and symbol, this discussion completes the derivation of the categories from symbolic logic, since it follows that they must involve three irreducible inferential elements, namely, the three categories of reasoning.

31. The requirements for objectivity and their relations to the categories are now laid bare. These requirements are derived directly from Peirce's signs, the icon, index, and token; and these signs themselves are the categories in a limited schematized form, the categories as they are expressed in terms of symbolic logic. From the category of firstness, represented by the icon, we can derive the requirement that ultimately *all reasoning must be diagrammatic, since reasoning consists of experimentation upon relations expressed by icons*. For reasoning, as Peirce has said, "consists in the observation that where certain relations subsist certain others are found, and it accordingly requires the exhibition of the relations reasoned within an icon."⁴³ If reasoning is to be clear and unam-

⁴¹ "On the Algebra of Logic," *The American Journal of Mathematics*, VII (1885), 182. Reprinted in *Collected Papers of Charles S. Peirce*, III, 212. Edited by Charles Hartshorne and Paul Weiss. Cambridge: Harvard University Press, 1933.

⁴² *Ibid.*

⁴³ *Ibid.*

biguous, and, therefore, to mean the same thing in all perspectives, that is, if reasoning is to be objective, the relations involved must be expressible in diagrams or icons, such as, e.g., mathematical formulae, or the formulae of symbolic logic, or the logical diagrams "usually attributed to Euler, but really going back to Vives."⁴⁴

From the category of secondness, represented by the index, we derive the requirement that *the ultimate test of reality is denotation, or pointing by means of indices*. This is unquestionably the most spectacular clue to objectivity that Peirce suggests. It rids philosophy of the Gordian maze of epistemological dilemmas and dialectical entanglements that have baffled it by simply abandoning them, and taking as its starting point instead the common sense beliefs which are the presuppositions of every successful experimentalist. "Let us not pretend to doubt in philosophy what we do not doubt in our hearts," Peirce proposes.⁴⁵ "Do you call it *doubting* to write down on a piece of paper that you doubt?"⁴⁶ "We must begin with all the prejudices which we actually have when we enter upon the study of philosophy."⁴⁷ And the most important of these prejudices is the complete confidence in the testimony of our senses when they jointly verify each other.

The conception of the testimony of the senses, when they jointly verify each other, may be summed up as the conception of pointing, or denotation; and it is denotation alone that distinguishes between objective realities and illusions or speculative fictions. For example, the only way that we can distinguish between a Lobatschevskian world of pure reason which is proven to be the size of a billiard ball, and the real world, which we believe to be considerably larger, is by pointing to the real world, so that we and others can verify our belief that it *is* much larger than a billiard ball. Or to use an even better example—when the planet Neptune first emerged from the calculations of Leverrier and Adams, it was a bare token with no existential reference other than that of prediction, a rationalistic dream world with no objective reality. But when Johann Galle pointed his telescope at the real Neptune flickering in the heavens and said, "*There is Neptune,*" then the token

⁴⁴ *Collected Papers* (Cambridge, 1932), II, 236.

⁴⁵ "The Rules of Philosophy," *Chance, Love, and Logic*, p. 2. Ed. Morris R. Cohen. New York: Harcourt, Brace, and Company, Inc., 1923.

⁴⁶ "What Pragmatism Is," *Monist*, XV (1905), 167.

⁴⁷ "The Rules of Philosophy," *Chance, Love, and Logic*, p. 2.

Neptune no longer symbolized a rationalistic dream, but an objective world that anyone could verify. It was a *heccity* that an index pointed to.

From the category of thirdness, represented by the token, we derive the requirement that *meaning must be defined pragmatically*. It is the token that expresses the meaning of whatever the index points to, and since meaning is explained through thirdness, which, as we shall see later, is only another name for purpose, the meaning of a token must be defined in pragmatic terms, in terms of its bearing on human conduct: i.e., the conceivable experimental phenomena that it involves. The astronomer, for example, could define Neptune in objective terms as a certain heavenly body whose transit across a definite meridian could be observed at a definite time. Anyone who had sufficient astronomical skill, and access to to an observatory, could verify the objectivity of the definition by looking through a transit at the proper time and either verifying or disproving the prediction. Such verification brings with it social agreement, and social agreement is indispensable to objectivity. Experimental phenomena are primarily phenomena that can be verified by any one with sufficient skill; and therefore, the fundamental requirement to which experimental phenomena must conform in order to be objective, is *social agreement concerning their conceivable consequences which have a bearing on human purposes*.

In short, objectivity in philosophy is reached through diagrammatic thought, denotation, and pragmatic specification of meaning (which brings with it social agreement), by the use of the icon, the index, and the token. This objectivity, it will be remembered, is not absolute, but it expresses a relatively stable belief about a real world.

PART TWO

THE IMPLICATIONS OF THE CATEGORIES FOR LOGIC AND METAPHYSICS

IV

LOGIC AS THE SCIENCE OF SYMBOLS

32. Peirce's entire system of general logic consists of the derivation of the implications of his theory of signs. He defines logic as the science which treats of the reference of signs to their objects, or more strictly, as "the science of the general necessary laws of Signs, and especially of Symbols."⁴⁸ Now since there are three types of signs, namely, the icon, index, and token, general logic accordingly would be composed of three conceivable sciences—1. *Formal or speculative grammar*, which would treat of the formal conditions of the truth of symbols having meaning, that is, of the reference of symbols in general to their grounds or imputed characters; 2. *Formal logic*, which would treat of the formal conditions of the truth of symbols; 3. *Formal rhetoric*, which would treat of the formal conditions of the force of symbols, or their power of appealing to a mind, that is, of their reference in general to interpretants.⁴⁹

In a later paper, Peirce describes these sciences more fully:

Logic may be defined as the science of the laws of the stable establishment of beliefs. Then *exact* logic will be that doctrine of the conditions of establishment of stable belief which rests upon perfectly undoubted observations and upon mathematical, that is, upon *diagrammatical*, or, *iconic*, thought.⁵⁰

Logic consists of three parts: 1. Speculative grammar (Duns Scotus), the study of those properties of beliefs which belong to them as beliefs, irrespective of their stability. It must analyze an

⁴⁸ *Collected Papers of Charles S. Peirce*, II, 52. Edited by Charles Hartshorne and Paul Weiss. Cambridge: Harvard University Press, 1932.

⁴⁹ "On a New List of Categories," *Proceedings of the American Academy of Arts and Sciences*, VII (1867), 294. Reprinted in *Collected Papers* (Cambridge, 1931), I, 296-297.

⁵⁰ "The Regenerated Logic," *Monist*, VII (1896), 25. Reprinted in *Collected Papers* (Cambridge, 1933), III, 271.

assertion into its essential elements, independently of the structure of language, and it will divide assertions into categories according to their essential differences. 2. Exact logic, which will consider, first, *necessary*, and second, *probable* reasoning. It will consider, thus, to what conditions an assertion must conform in order to correspond to "reality," that is, in order that the belief it expresses may be stable. 3. Speculative rhetoric, *which can be renamed objective logic*⁵¹—the study of those general conditions under which a problem presents itself for solution and those under which one question leads on to another.

The significance of this new name for formal or speculative rhetoric should be noted. The science that deals with the force or persuasive power of symbols, the science of persuasion, is no longer called speculative rhetoric but *objective logic*. This shows us that for Peirce, objectivity meant primarily the establishment of stable beliefs.

33. The three divisions of logic clearly are developments of the three categories, and in Peirce's final exposition of the nature of logic, these divisions were renamed *originalian* logic, *obsistential* logic, and *transuasional* logic,⁵² thus explicitly denoting their relation to the categories, which also had been renamed originality, obsistence, and transuasion. Formal grammar, or originalian logic, expresses firstness; it deals with symbols as isolated terms, considering only the reference of the symbol to the object as an isolated fact not related to any other facts. Formal logic, or obsistential logic, expresses secondness—it deals with symbols expressed in propositions, in which the objective validity of one symbol is expressed by its relations to another symbol; and which, therefore, may be true or false, depending on the objective validity of the correlated symbol. Formal rhetoric or transuasional logic expresses thirdness—it deals with the persuasive power of symbols as they are used to determine the beliefs of a mind that interprets those symbols in terms of its own purposes. Formal rhetoric would thus be the science that would deal with the objectivity of symbols in the sense that it would consider the problem of the translation of symbols from one perspective to another—from the perspective of one interpreter to that of another—from that of one group of interpreters to those of other groups. It would deal with the most

⁵¹ *Ibid.*, p. 272. (Italics mine.)

⁵² *Collected Papers* (Cambridge, 1932), II, 52.

general principles of persuasion; and these would be derived by grouping together all the interpreters whose standards of value are similar, thereby anticipating their interpretations of the symbols by which they are to be persuaded, as is done, for example, in modern advertising.

34. The application of the categories to these three divisions of logic is made clearer, perhaps, by the general classification of symbols which would be common to all the divisions. Symbols would be classified as follows:

1. Symbols which directly determine only their *grounds* or imputed qualities, and are thus but sums of marks or *terms*;

2. Symbols which also independently determine their *objects* by means of other term or terms, and thus, expressing their own objective validity, become capable of truth or falsehood, that is, are *propositions*; and,

3. Symbols which also independently determine their *interpretants*, and thus the minds to which they appeal, by premising a proposition or propositions which such a mind is to admit. These are *arguments*.⁵³

The logical meaning of "proposition" and "argument" can be understood most clearly in terms of the categories. In a proposition, the term which indicates the object of the symbol is called the subject, and the one that indicates the quality or character assigned to the subject is called the predicate. The subject is potentially a plurality, in so far as it is a general term. The objects indicated by the subject are therefore stated by the proposition to be related to one another on the ground of the character indicated by the predicate; and this relation may be either concurrence or opposition.

In an argument, according to Peirce, the premises form a representation of the conclusion, and this representation may be either an icon, an index, or a token of the conclusion. In deductive argument the conclusion is represented by the premises as a token—a general sign under which it is contained. In argument by induction, the premises are an index of the conclusion. For example, S^1 , S^2 , S^3 , and S^4 are samples of the collection M (that is, they are *indices* of M) and since S^1 , S^2 , S^3 , and S^4 are P , therefore all M is P . In argument by hypothesis, the premises are an icon of the conclusion. For example—if every member of the collection M has

⁵³ "On a New List of Categories," *Proceedings of the American Academy of Arts and Sciences*, VII (1867), 294. Reprinted in *Collected Papers* (Cambridge, 1931), I, 297.

certain qualities, namely, P^1 , P^2 , P^3 , and P^4 , and if a given sample S has those qualities, then the sample S is a member of the collection M . Thus: If every M is P^1 , P^2 , P^3 , and P^4 , and if S is P^1 , P^2 , P^3 , and P^4 , therefore S is M . In this argument, P^1 , P^2 , P^3 , and P^4 are icons of M , and they are also icons of S , and therefore the conclusion " S is M " is an icon of the relations between S and M in the premises, and vice versa.

35. The categories are the guiding principles for the classification of terms, propositions, and arguments according to their extension and their comprehension. For example, the monadic reference of a symbol, i.e., the direct reference of a symbol to its objects, is called its *denotation*. The dyadic reference of a symbol, i.e., the reference of the symbol to the qualities referred to it through its object, or the reference to the common characters of its objects, is called its *connotation*. The triadic reference of the symbol, i.e., the reference of the symbol to its interpretants through its object, or its reference to all the synthetical propositions in which all its objects in common are subject or predicate, is called by Peirce the *information* it embodies. Every addition to the denotation or connotation of a symbol takes place by means of a proposition which adds to the information in the above sense. It follows, therefore, that the extension and comprehension of a term are in an inverse relation, as long as the information remains the same. It also follows that every increase of information results in an increase of either the denotation or the connotation.

36. This is an imperfect view, Peirce tells us, of the application of the categories to logic, but it shows how suggestive these categories are in throwing light upon logic. It also enables us to see that in his logic, at least, Peirce has rigorously conformed to the requirements which we have derived from his categories. For the system of logic which would be constructed by Peirce's method of reinterpreting logic in the light of the categories would be the equivalent of the implications of the requirements for objectivity as applied to logic.

The major divisions and subdivisions of logic are seen to be trichotomies expressing the irreducible monadic, dyadic, and triadic categorial characters of logic. The three requirements for objectivity are nothing more than the generalization of these same categorial characters; and the chief requirement for objectivity is expressed severally by all of them, namely, that in order to a-

chieve objectivity all three of the categories are required, and that objectivity can not be reached if any of the categories are left out. By thus doing full justice to the monadic, dyadic, and triadic categorical characters of logic, Peirce has not only constructed a beautifully integrated system of logic, but he has conformed with admirable consistency to all the requirements for objectivity which we have shown to be involved in his own principles.

37. A second approach to the derivation of logic is through an empirical analysis of the laws of nervous action.⁵⁴ Such a program represents an attempt to base the objectivity of logic upon the proven objectivity of physiological psychology. The experimental facts of this science are pointed to by Peirce as the *denotative* foundation for his logic. His methodology in this approach to logic is, therefore, in conformity to the second of our requirements for objectivity. The following exposition is a restatement of Peirce's position in practically his own words:

The laws of reflex action are used to explain the formation of mental habits. It has been shown that when a nerve is stimulated, and the reflex response fails to remove the irritation, the reflex action will change its character again and again until the irritation is removed. With repetition, a strong habit of responding successfully will be set up; for the successful reactions have occurred most frequently in the past, and those actions which have occurred most frequently in the past are most likely to recur.

Similarly, a *belief* is a cerebral habit of the highest kind, which will determine what we do in fancy as well as what we do in action. A *judgment* is the representation to ourselves that we have a specified habit of this kind. A belief habit is vague, special, and meager at the beginning of its development, but as it develops it becomes more precise, general, and full, without limit. *Thought* is the process of this development, in so far as it takes place in the imagination. An *inference* is the process of forming one judgment, under the influence of a belief-habit, from another judgment. This habit of thought, which determines the passage from the antecedent judgment, called the premise, to the consequent judgment, called the conclusion, is known (when formulated as a proposition) as the *leading principle*.

Belief is determined partly by spontaneous inference and partly

⁵⁴ "On the Algebra of Logic," *The American Journal of Mathematics*, III (1880), 15. Reprinted in *Collected Papers* (Cambridge, 1933), III, 104.

by fresh peripheral excitations which create new belief habits. These peripheral excitations, according to the logician, are under a law, which states that

... they are all adapted to an end, that of carrying belief, in the long run, toward certain predestinate conclusions which are the same for all men. This is the faith of the logician. This is the matter of fact, upon which all maxims of reasoning repose. In virtue of this fact, what is to be believed at last is independent of what has been believed hitherto, and therefore has the character of *reality*. Hence, if a given habit, considered as determining an inference, is of such a sort as to tend toward the final result, it is correct; otherwise not.⁵⁵

Thus, inferences become valid and invalid, and logic arises.⁵⁶

The principles of the formation of mental habits are next used to explain the principles of inference. "The general type of inference is $P \therefore C$, where $\therefore$ is the sign of illation."⁵⁷ We get from the premise to the conclusion according to a habit or rule, which is a logically good one if it will never lead from a true premise to a false conclusion. That is, either the premise would be false or the conclusion would be true, but if the habit is bad, we could get a false conclusion even if the premise may be true.

A habit of inference may be formulated in a proposition which shall state that every proposition c , related in a given general way to any true proposition p , is true. Such a proposition is called the *leading principle* of the class of inferences whose validity it implies. When the inference is first drawn, the leading principle is not present to the mind, [although we are generally conscious of inferring on some general principle] but the habit it formulates is active in such a way that, upon contemplating the believed premise, by a sort of perception the conclusion is judged to be true.⁵⁸

The leading principle becomes the premise of new inferences, after the former inference is criticized, for logic implies not only making but criticizing inferences. So that while the form $P \therefore C$ is needed to express an argument, the form $P \text{---} < C$ is needed to express the truth of its leading principle. The form $P \text{---} < C$ is equivalent to the more modern form $P \supset C$ which means: if P , then C ; or, P implies C ; or, either P must be false or C must be true.

⁵⁵ *Ibid.*, p. 16.

⁵⁶ By "correct," Peirce is referring to his figure of reflex action, where the correct response is the one that succeeds in reaching the "final result" of getting rid of the irritation.

⁵⁷ "On the Algebra of Logic," *The American Journal of Mathematics*, III (1880), 15, Reprinted in *Collected Papers*, III, 107.

⁵⁸ *Ibid.*

V

PEIRCE'S PRAGMATISM

38. Peirce's doctrine of pragmatism, which is his best known contribution to philosophy, is a *theory of meaning* developed from the logical implications of the category of thirdness. As a matter of fact, it *is* the category of thirdness, expanded into a logic. The essence of pragmatism is identical with the essence of the category of thirdness, namely, the recognition that meaning and purpose are inseparable, that meaning must be interpreted in terms of human purposes and conduct. This is the principle which we have called the third requirement for objectivity in philosophy. In summarizing Peirce's pragmatism, therefore, we are not only surveying his most characteristic logical position, but at the same time we are explaining more fully what is meant by our third requirement for objectivity.

39. The doctrine of pragmatism was stated in its original form as a rule for attaining the maximum grade of clearness in expressing our ideas. "Consider what effects, which might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object."⁵⁹ Let us review briefly the steps in Peirce's reasoning that led him to formulate this rule.

Thought is stimulated into activity, he tells us, by the irritation of doubt. When belief is attained, and doubt is dispelled, then the activity of thought ceases. The sole function of thought, therefore, is the production of belief. But the essence of belief is the establishment of a habit of action. The function of thought, therefore, is the production of habits of action. What a thing means, then, is simply what habits it involves. All distinctions of meaning are reduced, therefore, to possible differences of practice, and thus they are tangible and practical.

It is impossible that we should have an idea in our minds which relates to anything but conceived sensible effects of things. Let us consider, for example, our idea of "wine." We can have no con-

⁵⁹ "How to Make Our Ideas Clear," *Chance, Love, and Logic*, p. 45. Ed. Morris Cohen. New York: Harcourt, Brace, and Company, Inc., 1923.

ception of wine outside of a belief, either that some particular substance is wine, or that wine possesses certain properties. Such beliefs are simply announcements that we would always act in regard to such things as we believe to be wine, according to the qualities which we believe wine to possess. A sensible perception would be the occasion of such action, and its motive would be the production of some sensible result.

Thus our action has exclusive reference to what affects the senses, our habit has the same bearing as our action, our belief the same as our habit, our conception the same as our belief; and we can consequently mean nothing by wine but what has certain effects, direct or indirect, upon our senses; . . . Our idea of anything is our idea of its sensible effects.⁶⁰

These are the premises upon which the doctrine of pragmatism is based.

40. Peirce accepts the logic of science as the only possible methodology by which beliefs can be established objectively. In his earlier paper on "The Fixation of Belief" he points out that the rival methods of fixing belief are unsound. He describes first the method of tenacity—the maintaining of a belief simply by constant repetition and refusal to consider anything but that which is conducive to the belief. This method breaks down because man's social nature is against it—his confidence is shaken in his own beliefs by the contradictory beliefs of others. The problem now is to fix the belief of the community. This is done by the method of authority, the will of the state. This is the best method for the masses, but it breaks down when the individuals realize that different nations have contradictory customs and therefore they doubt the superiority of their own. The a priori method is next adopted—that which is agreeable to reason is believed. This method fails because it does not secure permanent social agreement. The pendulum of metaphysics swings back and forth between materialism and spiritualism, and individual beliefs become doubtful. We turn finally to the method of science, in which beliefs are caused by an external permanency upon which our thinking has no effect and in which the ultimate conclusion of every man is the same, in other words, in which beliefs are objective. The fundamental hypothesis of this method is:

There are real things, whose characters are entirely independent of our opinions about them; whose realities affect our senses according to regular

⁶⁰ *Ibid.*, pp. 44–45.

laws, and, though our sensations are as different as our relations to the objects, yet, by taking advantage of the laws of perception, we can ascertain by reasoning how things really are, and any man, if he have sufficient experience and reason enough about it, will be led to the one true conclusion.⁶¹

By applying the fruitful method of science to the barren field of philosophy, Peirce hoped to secure the same genuine objectivity for philosophy that he had seen demonstrated in scientific laboratories all his life. The crucial problem, he realized, was the problem of meaning. If philosophy was to be objective, it was necessary first of all that philosophical concepts should have the same meaning for all philosophers. Accordingly, Peirce formulated his doctrine of pragmatism in order to furnish philosophy with a general rule for solving this problem according to the method of science. The meaning of a conception, he said,

. . . that is, the rational purport of a word or other expression, lies exclusively in its conceivable bearing upon the conduct of life; so that, since obviously nothing that might not result from experiment can have any direct bearing on conduct, if one can define accurately all the conceivable experimental phenomena which the affirmation or denial of a concept would imply, one will have therein a complete definition of the concept, and *there is absolutely nothing more in it.*⁶²

41. The rational meaning of a proposition is the form in which it becomes applicable to human conduct. Since experimental results are the only ones that can affect human conduct, the meaning of a proposition is the general description of all the experimental phenomena which it virtually predicts. Experimental phenomena are events in the future which will occur whenever certain conditions are fulfilled. Pragmatism limits itself to experiment. It does not intend to define the phenomenal equivalents of words and general ideas, but to eliminate their sensuous element and find their rational purport, which it finds in their purposive bearing.

A natural misinterpretation of pragmatism would be the conversion of the doctrine into a test for truth, which would stipulate that only those experimental phenomena which actually are *verified* in experience are true, and that all those which are not verified are invalid. Peirce himself made this mistake in his original 1878 pragmatism article, declaring that there was absolutely no

⁶¹ "The Fixation of Belief," *Chance, Love, and Logic*, p. 26.

⁶² "What Pragmatism Is," *Monist*, XV (1905), 162.

difference between a hard thing and a soft thing so long as they were not put to the test. If a diamond, he said, were to be crystallized in a bed of cotton, and would later be burnt up before it had ever been pressed upon by any hard instrument, then it would be a meaningless question, or a question merely of nomenclature, to ask whether the diamond was hard or not.⁶³ Later, however, Peirce realized that this interpretation was mistaken, and in his 1905 *Monist* article, he corrected it. According to the original maxim of pragmatism, we see

. . . that the question is, not what *did* happen, but whether it would have been well to engage in any line of conduct whose successful issue depended upon whether that diamond *would* resist an attempt to scratch it, . . .⁶⁴

42. Thus the intellectual purport of a concept, for pragmatism, consists in a *conceived conditional proposition*, and not in the results of an act of verification. It follows that since these conditional propositions constitute the ultimate nature of meaning, then some of them, at least, must be capable of being true. And that fact is equivalent to saying that possibilities are sometimes real, that chance is real, that there is real contingency in the world. This doctrine, which as we can see, is the direct outcome of pragmatism, is the essence of one of Peirce's most important metaphysical doctrines, his *tychism*, to which we shall now turn.

⁶³ "How to Make Our Ideas Clear," *Chance, Love, and Logic*, p. 46.

⁶⁴ "The Issues of Pragmaticism," *Monist*, XV (1905), 492.

VI

TYCHISM AND SYNECHISM

43. Tychism, that is, the metaphysics of probability, or the doctrine that absolute chance is real, is another implication drawn from the category of thirdness, or pragmatism. For pragmatism, according to Peirce, involves an acceptance of scholastic realism. Pragmatism identifies meaning with the formation of a habit, or the way of acting having the greatest possible generality. Generals or universals, therefore, are simply ways of acting. Since habits or ways of acting are just as real as particulars, in this sense universals are reals. Scholastic realism, in turn, is equivalent to an acceptance of real modality—which includes real necessity and real possibility. “It is the reality of some possibilities,” according to Peirce, “that pragmatism is most concerned to insist upon.”

The significance of the reality of modality, Peirce tells us, consists in its illumination of the nature of time. Time, from the viewpoint of scholastic realism, is a form of objective modality. The present is the inscrutable nascent state between the determinate and the indeterminate. The past is the existential mode of time, the mode of actuality and necessity. The future is the conditional mode of time, the mode of contingency. Unless the future is contingent, time is unreal and meaningless. The uncompromising insistence that the future is contingent is the first principle of tychism.

44. In his 1892 Monist article, “The Doctrine of Necessity Examined,” Peirce refutes the necessitarian position that “the state of things existing at any time, together with certain immutable laws, completely determine the state of things at every other time.” The usual proof for this position is that it is a necessary postulate of scientific reasoning. But this proof is inadequate, for to postulate a proposition is merely to hope that it is true. And unless a postulate can ultimately be verified by experience, it is not valid.

Nor can the principle of universal necessity be proven to be true, or even rendered highly probable, by the observation of nature.

For the essence of the necessitarian position is that certain continuous quantities have certain exact values. Now, how can observation determine

the value of such a quantity with a probable error absolutely *nil*? To one who is behind the scenes, and knows that the most refined comparisons of masses, lengths, and angles, far surpassing in precision all other measurements, yet fall behind the accuracy of bank-accounts, and that the ordinary determinations of physical constants, such as appear from month to month in the journals, are about on a par with an upholsterer's measurements of carpets and curtains, the idea of mathematical exactitude being demonstrated in the laboratory will appear simply ridiculous.⁶⁵

On the other hand, the principle of indeterminacy *can* be verified by experience. Tychism, simply as the frank recognition that irregularity is one of the fundamental characteristics of the universe, is proven in terms of our second requirement for objectivity by simply *pointing* to the irregularities that can be observed in nature. Every throw of dice is a denotative instance of the reality of chance. Nature is continually changing, becoming more diversified, and more complicated. These changes, which are quite arbitrary, were not introduced all at once at the creation of the world, but have been continually taking place. For the denotative proof of this fact:

Question any science which deals with the course of time. Consider the life of an individual animal or plant, or of a mind. Glance at the history of states, of institutions, of language, of ideas. Examine the successions of forms shown by paleontology, the history of the globe as set forth in geology, of what the astronomer is able to make out concerning the changes of stellar systems. Everywhere the main fact is growth and increasing complexity. Death and corruption are mere accidents or secondary phenomena. Among some of the lower organisms, it is a moot point with biologists whether there be anything which ought to be called death. Races, at any rate, do not die out except under unfavorable circumstances. From these broad and ubiquitous facts we may fairly infer, by the most unexceptionable logic, that there is probably in nature some agency by which the complexity and diversity of things can be increased; and that consequently the rule of mechanical necessity meets in some way with interference.⁶⁶

45. Just as the unity and regularity of the universe is explained by synechism, the principle of continuity, so the diversity and irregularity of the universe is explained by tychism.

By thus admitting pure spontaneity or life as a character of the universe, acting always and everywhere though restrained within narrow bounds by law, producing infinitesimal departures from law continually, and great

⁶⁵ "The Doctrine of Necessity Examined," *Chance, Love, and Logic*, p. 188. Ed. Morris R. Cohen. New York: Harcourt, Brace, and Company, Inc., 1923.

⁶⁶ *Ibid.*, pp. 195-196.

ones with infinite infrequency, I account for all the variety and diversity of the universe, . . . ⁶⁷

Spontaneity, while it cannot explain each lawless event, explains the general fact of irregularity. And at the same time, it loosens the bond of necessity sufficiently to make room for another type of causation, the creative spontaneity of mind.

46. Thus, tychism resolves itself into an idealistic position. For . . . by supposing the rigid exactitude of causation to yield, . . . be it but by a strictly infinitesimal amount—we gain room to insert mind into our scheme, and to put it into the place where it is needed, into the position which, as the sole self-intelligible thing, it is entitled to occupy, that of the fountain of existence; and in so doing we resolve the problem of the connection of soul and body.⁶⁸

But these are metaphysical speculations for which objectivity can no longer be claimed. The principle of tychism itself is an objective fact of nature which, as we have seen, conforms to the Peircian requirements for objectivity. But it is valid only as a description of nature, or as a regulative principle of science which may aid in forming hypotheses, whose objectivity, of course, is conditional upon their verification. The proven objectivity of tychism as a descriptive principle does not objectify metaphysical speculations that far transcend its specific meaning. And in developing what he believes to be the implications of this principle, Peirce has abandoned the objectivity of science and offers us instead his own private metaphysics.

47. Synechism, or the metaphysics of continuity, "than which no conception yet discovered is higher," as he says in an unpublished writing, is the culmination of Peirce's philosophy. Continuity is the principle which synthesizes and unifies the whole of Peirce's system, as for him it is the principle which explains the unity of the universe. The simplest statement of this principle, perhaps, is that all differences are differences of degree—that there is an infinite series of possible intermediates between any two given intermediates. As a regulative principle of science and philosophy, the principle of continuity becomes a suggestive hypothesis that leads us to new discoveries enriching the unity of our science. For the discontinuities that have been the stumbling blocks which impeded the progress of science towards its goal of unity are gradually being

⁶⁷ *Ibid.*

⁶⁸ *Ibid.*, p. 198.

broken down by the discovery of intermediaries which prove that the old apparent discontinuities were not really ultimate. The progress of recent physics is a striking example of synechistic unification. The motto of a synechistic scientist is "There are no inexplicables," a motto which inspires him with the persistency which is part of the genius of the successful experimentalist.

Synechism thus unites and integrates the diversities of an apparently chaotic world into the continuities of a universe. It objectifies the relativity of tychism by unifying the diversities of chance probabilities into a continuous scale of degrees of probability. In this way it reduces the objectivity of the world to degree of probability of stability. Objectivity has become relative objectivity—the relative probability of objectivity, which is the same conclusion that was reached by the pragmatic reinterpretation of the conception of objectivity.

48. Synechism, like tychism, is derived from the category of thirdness. For the category of thirdness means generality, and "from a logical point of view generality is continuity."⁶⁹ The ideas of pragmatism must be synthesized by the principle of continuity. For pragmatism involves the recognition that

. . . continuity is an indispensable element of reality, and that continuity is simply what generality becomes in the logic of relatives, and thus, like generality, and more than generality, . . . is the essence of thought.⁷⁰

The categories are unintelligible unless they are synthesized by the principle of continuity, and pragmatism itself can only be understood if this is clearly realized. Although the category of thirdness, or generality, is an essential ingredient of reality, it does not by itself constitute reality. It can only be understood in terms of doing, or action—secondness; and secondness cannot exist without immediate feeling, or firstness, on which to act.

49. Synechism is the law of mind. The one primary and fundamental law of mental action consists in a tendency to generalization. Feelings spread and awaken other feelings, and by repetition habits of inciting feelings are formed. The consciousness of such habits are general conceptions. Ideas tend to spread continuously and affect other ideas. They lose intensity by spreading in this

⁶⁹ C. S. Peirce, "Training in Reasoning," *The Hound and Horn* (Harvard) II (July, 1929), 409.

⁷⁰ C. S. Peirce, "What Pragmatism Is," *Monist*, XV (1905), 180.

way, but they make up for that by gaining in generality and becoming welded to other ideas. Ideas are continuous. Past ideas are connected to the present by a series of real infinitesimal steps, otherwise they could not be recalled. Consciousness takes place in infinitesimal intervals of duration, and in each of these intervals the temporal sequence of its beginning, middle, and end are directly perceived as immediate feeling. This interval is followed by another whose beginning is the middle of the former, and whose middle is the end of the former. From the immediate perception of these two durations we gain an inferential perception of the relation of all four instants. Thus, if there is an indefinite succession of these inferential acts of comparative perception, the last interval of duration will contain objectively the whole series. In any continuous flow of inference through a finite time, in the last moment there will be a mediate objective consciousness of the whole time—in the last moment, the whole series will be recognized.

Not only is continuity the law of mind, but it is the law of nature as well. The recognition that nature is continuous is the fundamental postulate of the successful sciences. Modern physics, for example, is based upon the conception of a four dimensional space-time continuum; and biology has replaced the old logic of species by the potential continuum of forms.

50. As Professor Hartshorne has pointed out,⁷¹ the nature of universals, the meaning of possibility, and the objectivity of experience can be understood best in the language of continuity. The universal is the continuum of its possible instances. A continuum is not a discrete multitude, but a principle exhaustively generative of multitude. Possibilities or qualities that have not been actualized do not subsist as eternal objects, but

. . . there is an eternal creative source of qualities such that, given any two actualized qualities, there is an inexhaustible possibility of intermediaries between them. This inexhaustible possibility of the intermediaries is their continuity (a "multitude beyond all multitude"). This view amounts to a mathematical analysis of the problem of essences and of universals which is neither nominalistic nor realistic in the usual senses. It is inseparable from a recognition of the objective significance of the ideas of vagueness, possibility, potentiality, creativity, free becoming. The future is new even from the standpoint of subsistence or of essence. . . . There is here a precise formulation of the principle of emergence.⁷²

⁷¹ "Continuity, The Form of Forms," *Monist*, XXXIX (Oct., 1929), pp. 521-34.

⁷² *Ibid.*, pp. 527-28.

With this glimpse of the importance of the principle of continuity for philosophical objectivity, we can understand why synechism and not pragmatism, was the final name by which Peirce summarized his philosophical position as a whole, and why he considered his metaphysics of synechism to be his most important contribution to philosophy. For continuity, according to Peirce, is the only possible explanation for the existential and qualitative unity in diversity which constitutes the coherence of the universe.

VII

THE OBJECTIVITY OF PEIRCE'S CATEGORIES

51. We may begin our evaluation of the objectivity of Peirce's categories by testing them according to the three requirements for objectivity which we have derived out of Peirce's own principles. The first of these requirements was that *all reasoning must be diagrammatic, i.e., the relations involved must be expressible in diagrams or icons*. That Peirce's categories conform to this requirement hardly needs to be pointed out, for as we know, the three categories are simply objectifications of the three elemental relations of symbolic logic, and thus every instance of firstness, secondness, or thirdness may be diagrammed as the occurrence of a monadic, dyadic, or triadic relation respectively. These diagrams are not expressions of a superficial or accidental character of the categories, but express their innermost essence. The objectivity derived from these diagrams is that of precise communication, in an unambiguous ideographic form, of the logical meaning of the categories.

That the *logical* essence of the categories is thus expressible can not be questioned, but whether the *metaphysical* essence of the categories is similarly expressible is not so readily apparent. Firstness, for example, is *that which is what it is independently of anything else*. It is revealed, according to Peirce, in, e.g., icons, pure quality, originality, spontaneity, pure feeling, immediate consciousness, the absolute present, freedom, etc. Is it really possible, however, to express all these diverse categorial characters by means of a diagram of a monadic relation, i.e., is it their *one-ness* which makes them what they uniquely are? That they are all *instances* of one-ness or monadicity may be seen upon even the most casual examination. Every one of them, e.g., can be made the subject of the very proposition that *defines* firstness: "An instance of ' . . . ' is what it is independently of anything else."

Granting, then, that the categorial characters of firstness are all monads, the real issue remains: whether their monadicity is the essential or constitutive factor that makes originality, e.g., original; freedom, free; spontaneity, spontaneous, etc.; or is their

monadicity merely an accidental non-essential factor that could have been otherwise without changing their nature? A blue pencil, a blue book, a blue chair, a blue lantern—all these are instances of blue things, but it is not their *blueness* that makes them pencils, books, chairs, or lanterns; and if they had been of any other color, their essence would not have been affected, and they would still be pencils, books, chairs, and lanterns. On the other hand, philosophers, mathematicians, astronomers, physicists, biologists, physiologists, psychologists—all these are lovers and seekers of knowledge, and in this situation, the desire for knowledge is not only the common factor, but a constitutive factor in making these men what they are, and if they were anything other than lovers and seekers of knowledge, they would not be philosophers, mathematicians, astronomers, etc.

Is the *monadicity* of the categorial characters of firstness, then, a non-essential common character, like the blueness of blue things, or is it a constitutive common character, like the desire for knowledge that makes men philosophers and scientists? A simple mental experiment will show that monadicity is genuinely a constitutive factor, for (a) it is impossible to conceive of the categorial characters of firstness being other than monads and still retaining their essential character, and (b) reflection will show that in a very real sense it is the monadicity of the characters that make them what they uniquely are. Take, e.g., the characters originality, spontaneity, pure quality, freedom. Try to imagine any of these characters as essentially dependent on anything but themselves and you will discover that they have lost their meaning. Furthermore, you will be impelled to recognize that it is the very *monadicity* of these characters that give them their meaning, for what is originality or spontaneity or freedom but *independence* from all external determinants—sheer self-sufficiency, and what is that but monadicity? The relation of pure feeling and quality to firstness is somewhat more arbitrary, for they are logical abstractions; but pure quality, considered as a ground or essence, is *independent of all embodiment*, and feeling similarly is a pure quality of immediate consciousness, imaginatively abstracted out of all its external relations and considered *in and for itself alone independent of everything else*. Peirce defines feeling as

... an instance of that kind of consciousness which involves no analysis, comparison or any process whatsoever, ... which has its own positive

quality which consists in nothing else, and which is of itself all that it is, however it may have been brought about; . . . ⁷³

Thus, monadicity is seen to be inseparable from quality and feeling, and in the restricted sense that Peirce interprets them, monadicity is constitutive of their meaning.

These examples illustrate the inseparability of monadicity from the categorial characters of firstness; and in the same way, the inseparability of dyadicity from the categorial characters of secondness, and of tradicity from those of thirdness, can be shown. Some of the typical categorial characters of secondness are "another, relation, compulsion, effort, dependence, independence, negation, occurrence, reality, and result."⁷⁴ That they are all instances of dyadicity can be shown by making every one of them the subjects of the proposition that defines secondness. An instance of ". . ." "is that which is what it is by force of something to which it is second." Only two of the characters in this list call for any discussion, namely, *relation* and *reality*; the dyadicity of the remainder can be seen upon inspection when they are substituted in the above definition. By relation, in this passage, Peirce did not mean *relatedness*, for there are three kinds of relatedness, corresponding to the three categories; yet even relatedness is a *fact* concerning a set of relata. He was referring to Kant's category of relation, which includes reaction, causality, and subsistence, all of which he interpreted as being so many different modes of *necessity*, which is, of course, thoroughly dyadic. Reality calls for discussion not because its dyadic character is any less obvious than the dyadicity of any of the other characters in the above list, but because of its extreme importance. It is the chief merit of the category of secondness that it permits a thoroughly realistic interpretation of philosophy. Reality is brute fact, it happens, it is stumbled upon, it offers stubborn resistance, it is the objective over against the subjective, it is sheer otherness. It is this unresolvable otherness, i.e., genuine dyadicity, of reality that makes it real. Thus, dyadicity is not only inseparable from, but constitutive of, "reality."

The constitutive character of the dyadicity of the other categorial characters of secondness is equally apparent: That which is "another" is made so by being related to something else which it

⁷³ *Collected Papers of Charles S. Peirce*, I, 152. Edited by Charles Hartshorne and Paul Weiss. Cambridge: Harvard University Press, 1931.

⁷⁴ *Ibid.*, II (Cambridge, 1932), 184.

is other than. "Relation" i.e., "necessity," is that whereby one entity compels another to be what it is. "Compulsion," of course, is the same as necessity, and "dependence" is simply a limited degree of necessity. "Result" is an instance of necessity, it is that which happens because something else has made it happen. "Occurrence" may be considered to be either similar to "result" or to "reality," that is, it may either be considered to be an immediate effect or it can be thought of simply as brute reality. "Negation" is that which is not, because something else has made it so. "Independence" involves a relation between two things, that which is independent, and that which it is independent of; and it is their absolute *twoness* that constitutes their independence.

Thus, as these random examples illustrate, dyadicity is inseparable from and therefore constitutive of the meaning of any categorial character of secondness; so that a diagram of the dyadicity of the character is a faithful iconic representation of what is meant by the character.

Some of the typical categorial characters of thirdness are mediation, generality, order, interpretation, meaning, purpose, and continuity. The triadicity of these characters can be shown through the same method as before, namely, by substituting each of them as the subject of the proposition that defines thirdness. An instance of ". . ." is "that which it is owing to things between which it mediates and which it brings into relation to each other." Before the substitution is made, however, one further fact about thirdness needs to be borne in mind, and that is that the category of thirdness is constituted not only by triadic relations but also by all polyadic relations (those of an additivity greater than the triad) for as the logic of relatives has shown, all these are reducible to triadic relations. Thus, triadicity is present when it can be shown that three or more relations are involved. With these qualifications, the triadicity of the above categorial characters can be verified by inspection when the substitution test is made.

In the light of Peirce's teachings, the triadicity of interpretation, meaning, and purpose is at once apparent. Meaning is the *interpretation* of a *datum* by an *interpretant*; Purpose is the *meaning* of a *datum* to an *interpretant*; Interpretation is the *purpose* of a *datum* for an *interpretant*. Meaning involves interpretation, which involves purpose; purpose involves meaning, which involves interpretation; interpretation involves purpose, which involves mean-

ing. Thus, these terms are irreducibly triadic, and can only be understood in terms of their triadicity.

"Mediation" is a relation between a first and a second by means of a third. "Order" is a set of mediations following each other in regular sequence—an interconnected system of mediations, organized in terms of purpose and meaning. Order in the narrow sense of a natural class is a class defined by purpose and fitting into a general plan of classification. "Continuity" is an infinite series of mediations, the *order* of the universe, the endless possibility of intermediaries that subsists potentially between every set of pairs in the universe. "Generality" is potential meaning, meaning *in futuro*, consisting of a rule for the determination of meaning in all possible cases that may ever be actualized. Thus, generality is a *meaning* that involves *potentiality* and *conditional necessity*.

Mediation, then, is seen to involve simple triadicity; while order, continuity, and generality involve complex triadicity, or polyadicity; and in each case triadicity is seen to be inseparable from the categorial character in question.

This concludes our consideration of how Peirce's categories conform to the first of the three requirements for objectivity. We have seen that the relations involved in the categorial characters of firstness, secondness, and thirdness are in every case inseparable from their meaning; and we may conclude, therefore, that when these relations are expressed in diagrams, the diagrams are genuinely symbolic of an essential feature of their meaning.

52. The second requirement for objectivity is that *the ultimate test of reality is denotation, or pointing by means of indices*. In conformity to this requirement, if the categories are *real*, and not mere figments of logical fantasy, we must be able to point them out in experience and be able to say "*this* is firstness, *this* is secondness and *this* is thirdness," and we must point to entities that are admitted by philosophers to be real existents in experience. Peirce's entire *phenomenology* was an attempt to establish just such a denotative status for the categories. The method of the phenomenology consisted in the description of the categorial characters of experience as they are interpreted in terms of the three categories. It is the categorial characters and not the categories themselves that are found in experience; and the task of the phenomenology is to prove that all the diverse categorial characters that can be denotatively shown to form part of experience are simply empirical

modes of three a priori categories that are not derived from experience. Peirce seems to have been confused at this point, for he attempted, in his phenomenology, to determine independently the nature of the categories themselves by studying their categorial characters. Such a procedure, however, as we have pointed out earlier,⁷⁵ is not only invalid but impossible, and a critical study of Peirce's phenomenology shows that unless his conception of the categories had been fully formed before he entered upon the study of phenomenology, the latter would have been impossible. What he really did was first to analyze experience into its various categorial aspects, or sub-categories, and then to arrange all of these sub-categories into three groups or families, which he called firstness, secondness, and thirdness. The common characteristic of all the members of the family of firstness is monadicity; of secondness is dyadicity; and of thirdness is triadicity. In our discussion of the first requirement for objectivity, we have considered some of the various categorial characters that are found in experience, namely, icons, quality, originality, spontaneity, feeling, immediate consciousness, the absolute present, and freedom, all of which were seen to be modes of firstness; another, relation, compulsion, effort, dependence, independence, negation, occurrence, reality, and result, all of which were seen to be modes of secondness; and mediation, generality, order, interpretation, meaning, and continuity, which were seen to be modes of thirdness. *Instances* of every one of these categorial modes can be denotatively shown to permeate experience, and thus the *applicability* of the categories to experience is established in conformity to our second requirement for objectivity. For the purpose of the categories is to make the interpretation of experience possible, and any given experience can be interpreted as a *denotative instance* of various categorial characters into which the experience may be analyzed, and all of these characters, whatever they may be, can be shown to be modes of firstness, secondness, or thirdness. Thus, the categorial characters of firstness, secondness, and thirdness may be considered to be the denotative proof of the reality of these categories, for it is in terms of these modes that the categories are actualized. Thus, the categorial modes or characters are like Kant's *schemata*, with this difference, that where for Kant there was one a priori schema for each category, for Peirce each category is inexhaustively generative of schemata, which can be discovered only a posteriori.

⁷⁵ See above, pp. 29-30.

53. SCHEMATISM OF PEIRCE'S CATEGORIES

A Brief List of the Major Categorical Characters of Firstness, Secondness, and Thirdness.⁷⁶

FIRSTNESS	SECONDNESS	THIRDNESS
God the Creator....	God Completely Revealed.....	Every State of the Universe
Beginning.....	End.....	Middle
Being.....	Substance.....	Accidents
Present.....	Past.....	Future
Feeling.....	Volition.....	Cognition
Esthetics.....	Ethics.....	Logic
Perception.....	Experience.....	Reason
Subsistence.....	Existence.....	Conditional Necessity
Self-Consciousness..	Memory.....	Expectations
Sensibility.....	Motion.....	Growth
Term.....	Proposition.....	Argument
Feeling.....	Contractility.....	Assimilation
Icon.....	Index.....	Token
Positive degree of an Adjective....	Superlative Degree.....	Comparative Degree
Position.....	Velocity (as relation of two successive positions).....	Acceleration, i.e., velocity as involving continuity
Chance.....	Law actualized as present necessity.....	Habit taking, law as regulative principles
Sporting.....	Hereditv.....	Evolution
Freshness	Effort	Mediation
Life	Resistance	Selling
Freedom	Fact	Buying
Manifold of Sense	Straight Road.....	Forked Road
Idiosyncrasy	Struggle	Mixture
Secondary quality	Experience	Vector Resultant
Immediate	Action	Sympathy
Possibility	Reaction	Conduct
Potentiality	Blind Necessity	Social Agreement
Originality	Cause and Effect	Contract
Spontaneous	Other	Continuity
Identity	Negation	Process
Vividness	Force	Moderation

⁷⁶ This table is a condensed statement of some of the categorical characters or schemata ascribed by Peirce to the three categories. No attempt has been made in this table to distinguish between what Peirce has called the firstness, the secondness, and the thirdness of *firstness*—the firstness, the secondness, and the thirdness of *secondness*—and the firstness, the secondness, and the thirdness of *thirdness*. For the sake of simplicity, the schemata are listed only under the three major divisions of the categories.

FIRSTNESS	SECONDNESS	THIRDNESS
Indeterminacy	Constraint	Generality
	Reality	Infinity
	Creation by <i>Fiat</i>	Diffusion
	Arbitrary Will	Growth
	<i>Polar Distinctions:</i>	Intelligence
	(a) Pleasure and Pain	Meaning
	(b) Right and Wrong	Intention
	(c) Necessity and Impossibility	Purpose
	(d) Reasonable and Perverse	Giving
	Shock	Right
	Strain	<i>General</i>
	Change	(a) Permanent
	Permanence	(b) Conditional
	Coincidence	Translation
	Accident	Transaction
	Individual	Transfusion
	Fight	Transcendental
	Subject	Life
	Thing	
	Reciprocity	
	Husband and wife etc.	
	Doubt	
	Similarity	
	Identity	
	Object	
	Obstacle	
	Obstinate	
	Insistence	
	Faith	
	Resemblance	
	Contrast	
	Comparison	
	Conscience	
	Relation	
	Effect	
	Another	
	Compulsion	
	Occurrence	
	Result	
	Heccity	
	Inertia	
	Hard Fact	
	Limitation	
	Conflict	
	Constraint	

54. The third requirement for objectivity is that meaning must be defined pragmatically, that is, in terms of the conceivably verifiable consequences which have a bearing on human purposes that are involved. In accordance to this requirement, if the categories are to be objective, they must be shown to involve certain consequences which may conceivably be verified in experience by others; and the purposive bearing of these consequences must constitute their meaning.

The empirical consequences of the categories are the *schemata*, or categorial characters, of the categories; and the meaning of the categories consists in the applicability of these schemata for the interpretation of experience.

The crucial test of the adequacy of a philosophy of experience is that it must account for not only veridical perception, but hallucinations, dreams, illusions, and errors as well. Let us test the objectivity of the categories, then, by determining their adequacy for the interpretation of these various types of experience. We may consider first an instance of simple veridical perception, such as my recognition of a certain object as a fountain pen. Resting upon my desk, I *see* a rather long and narrow patch of color, with shiny highlights upon it that make it appear *cylindrical*; and I see a shadow cast upon the desk apparently by this patch of color; so I infer that the patch of color is an *object*. By remembering how my fountain pen looks, and imagining how it would appear to me if I saw it from my present perspective, I see a resemblance between the cylindrical colored object before me and my imaginatively projected remembrance of my fountain pen, so I infer that what I see before me *is* a fountain pen. I pick it up and hold it between my fingers and I perceive a resemblance between the smooth slippery hardness of the present object and my remembrance of the tactual sensations that I have received from my own pen, and thus my belief that the visual fountain pen is a real object has been confirmed.

Firmly believing now in the genuineness of the fountain pen, I attempt to write with it. If no ink flows, I shake it, and if it still does not write, I conclude that it is empty and proceed to fill it. After it is filled, I try again—the ink flows smoothly, and words appear on my paper. My belief in the objective reality of the pen is now unshakable—all my expectations have been actualized, and *by writing*, the pen has fulfilled its meaning.

All three of the categories are involved in my recognition of the pen, and it is just this fact that establishes its objectivity. The Qualities of the pen as they are perceived by the senses are instances of *Firstness*, as are also my Self-consciousness, the Vividness of my perceptions, the Position of the pen, its Presence, its Idiosyncrasy, its Immediacy, its Identity, and its Being. *Secondness* is involved in the Otherness of the pen, its Independence, its Permanence, its Resemblance to my Remembrances, in the Force I Exert upon the pen, in the Resistance that its Substance offers to the Pressure of my fingers, in its Inertia, in the Compulsion with which the words are formed as I Cause the pen to move over the paper, in the Hard Fact of the Denotative Reality of the pen, of which I am convinced after I have verified my recognition of the pen. *Thirdness* is involved in the Meaning and Generality of the Symbol fountain pen with which I designate the object that I have recognized. It is involved in the Conditional Necessity of my Prediction concerning the experimental phenomena that constitute the Meaning of the pen, and in the Process of Verifying these predictions, in the Purpose for which the pen has been made as an Instrument for writing, in my Intentions concerning the Use of the pen, in my Awareness of the pen as Mine, that is, in my Ownership of the pen, in my Habits of expressing myself by Means of the pen, and in the Meaning of the Words that I write with the pen.

Firstness tells me what the pen seems or appears to be like; *Secondness* tells me that it really is what it seems to be, i.e., a hard fact, a real external object; and *Thirdness* tells me what the pen means and what it is good for. The Vividness of the information imparted as firstness assures me that my experience is not a Dream, and the Order and Connectedness and Reasonableness that I experience as Thirdness, and the Hard Fact of the pen that I experience as secondness, confirm this assurance. Secondness convinces me that the experience is not a *Hallucination*, and Thirdness assures me that it is not an *illusion* or *error*. For a dream is dim and vague and shadowy and unsubstantial and chaotic and confused and unreasonable—firstness is suppressed to a minimum, secondness is completely absent, and thirdness is disorganized, disjointed, and confused. A hallucination, such as the pink elephants seen by a dipsomaniac, differs from a veridical perception only in that it is totally devoid of *secondness*, a fact that can be tested and con-

firmed denotatively by the joint testimony of all the senses. An *illusion*, such as the visual bentness of the stick in the water, is an apparent contradiction between the qualities of an object as they are severally reported by firstness—a contradiction which is confirmed by the report of secondness, but which is finally resolved through the intervention of thirdness. The visual sense reports that the stick has the quality of bentness, the tactual sense reports that the stick has the quality of straightness. Thirdness denies that a stick can be both bent and not bent at the same time and place. Secondness, however, confirms the report of firstness by denotation (i.e., social agreement concerning the alleged facts pointed to) for it reports that whenever a stick is placed in water, its bentness can be seen and its straightness can be felt *by any normal observer*, and secondness, i.e., the mind at the level of secondness, concludes that the bentness and the straightness are not imaginary, but denotatively real phenomena. Thirdness, however, *explains* the illusion in terms of the laws of refraction of light and the physiology of vision. The visual bentness of the tactually straight stick immersed in water is seen to be due to a real bending of the rays of light coming to the eye from the stick. The image is formed by the eye along the line of projection of the ray after it has been bent, so that the image of the immersed portion of the stick is dislocated from the stick itself. When the amount of displacement due to the bending of the light is mathematically calculated, it is seen to be exactly equal to the visual displacement. Thus, the bentness of the visual stick is seen to be perfectly consistent with the straightness of the tactual stick, and the experience of the illusion has become intelligible.

55. It follows, therefore, that the categories conform to the third requirement for objectivity, which states that the meaning of the categories must consist in the applicability and adequacy of the categorial schemata for the interpretation of experience. For we have seen that the categories account for not only veridical experience, but dreams, hallucinations, and illusions as well; and even the problem of error can be resolved in terms of the category of thirdness. By means of *verification*, which is one of the categorial schemata of thirdness, all errors, whether of perception, indication,⁷⁷ or reasoning, can usually be *discovered*, if they are present,

⁷⁷ Errors of indication may be the result of (a) the dislocation of a fixed index, such as a road sign, from its proper position; or (b) the ambiguous reference of an index,

or *ruled out*, if they are absent. Error deceives us only when it is unrecognized, and verification, if carried far enough, eliminates the possibility of such deception. We conclude, therefore, that since Peirce's categories have been shown to be adequate and applicable for the interpretation of experience, they are in so far *objective*; and perhaps the most important lesson that we can gain from Peirce's teachings is the recognition that the failure to reach objectivity in philosophy has usually been due to the neglect of one or more of Peirce's categories.

such as a proper name, to two or more correlates; or (c) the reference of an index, such as an ordinary label, to a correlate whose identity has been erroneously established; or (d) mechanical defects in an indexical instrument, such as a voltmeter or a balance or a clock.

